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By-McBride, Jack G.

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A management study of the existing statewide educational radio network and of a proposed stationwide network with regard to five basic areas of concern--(1) the administrative structure, (2) educational needs, (3) legal considerations, (4) fiscal data, and (5) technical requirements. Various alternatives and supporting data are developed from which decisions can be made to evolve the most productive statewide educational communications system. The report is intended to complement a technical report prepared under another contract. The appendices contain information on ETV arrangements on a state-by-state basis. (FPO)

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REPORT
TO
THE
WISCONSIN EDUCATIONAL COMMUNICATIONS BOARD

ON

A
WISCONSIN EDUCATIONAL RADIO AND TELEVISION MANAGEMENT STUDY

Jack G. McBride
Nebraska Educational Television Commission

October 15, 1968

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I. THE PROJECT

The Wisconsin Educational Communications Management Study began on July 9, 1968 with appointment of the writer by the Wisconsin Educational Communications Board as consultant-project director according to a pre-established research study procedure. Appointment was further formalized in a document labeled "Contract #5083, Project #6808-1", as drawn between the writer and the State Bureau of Engineering on behalf of the Wisconsin Educational Communications Board.

In brief, the project called for a professional management study of the existing statewide educational radio network and of a proposed statewide educational television network according to five basic areas of concern: the administrative structure under which a statewide educational communications system most effectively should function; educational needs to be serviced by the recommended communications system; legal considerations pertinent to activation; expansion and operation of such a system; fiscal data appropriate to construction and operation, and; technical requirements for the consolidated system.

Ordinarily such state studies have been conducted over a 6 to 12 month period. The timetable mandated for the Educational Communications Board (ECB) following its appointment and subsequent activation of the Educational Communications Division of the Coordinating Council For Higher Education necessitated a shorter project life. Because of Wisconsin's considerable experience in educational radio and television; because of a variety of incisive investigations and planning over the years within the State prior to the instant study; because of groundwork developed by the Board's acting executive director, and of coordinative services and the on-site assistance of the new executive director, and; because the writer was able to draw upon the experiences of previous state studies of a similar nature together with the Board's technical consultants, it was possible to telescope the project into a 4 month period without substantive loss. (Certain pre-contract activities began as of June 14th.)

With the severity of restrictions of both time and other resources, it was necessary with the ECB to delimit the study to maximum extent, and to arrive at a clear understanding of project scope and limitations. Accordingly, depth study of a statewide educational television network program service versus the existing State radio network program service was excluded (although this point is treated in Chapter IV). Detailed study and comparison of the various program services possible through a statewide ETV network as related to Wisconsin's needs could not be included. Nor could specific study of the future need of the University of Wisconsin to link its branch campuses and two year centers by means of closed circuit television, or the similar need to see campuses of the State University system interconnected. These needs, however legitimate, could in this project be addressed only as they pertained to a statewide educational broadcast network system. Similarly, specific educational radio and television needs on a given campus had to be considered outside the purview of this study. The campuses of all state-supported higher educational institutions will have such communications equipment needs. Most will develop irrespective of a statewide system; only certain of these campus facilities will be directly related to an operative state networking system. These latter are discussed in the report.

A June 19, 1968 letter from the writer to the Educational Communications Board further delineated the scope of the assignment. It stated in part:

> "The study will directly address problems attendant to the development of a statewide educational television system and program service, and the corresponding development of an improved educational radio system and service. Secondary attention will be paid closed circuit television, 2500 megacycle transmission and other ancillary educational and electronic media. It is felt that the project must be delimited in this manner in the extremely short time allotted, if final recommendations and planning are to be constructive and concrete. Mr. Franks, the Educational Communications Board and educational broadcasting practitioners throughout the State will thereby have available to them a practical blueprint for action which should result in the most modern, professional and educationally meaningful broadcast radio and television system to serve all of Wisconsin's students in their classrooms and citizens in their homes - with due regard to cost."

The Wisconsin Educational Communications Management Study was conducted during the 4 month period according to plan from both the project director's home office and within the State. A total of 11 trips were made on behalf of the project; hundreds of miles were travelled within Wisconsin to enable on-site inspections, interviews, a variety of meetings and other data gathering. Existing Wisconsin radio and television facilities were inspected; future facilities planning was investigated. The administrative and operational structures of all existing state networks were analyzed.

The Management Study was conducted concurrent with a similar technical study authored by the Jansky & Bailey Broadcast-Television Department of Atlantic Research, also under contract to the State Bureau of Engineering on behalf of the Educational Communications Board. The Management Report is intended to be considered in tandem with and complementary to the Technical Report. The two reports comprise the whole which lays out the recommended plan for Wisconsin.

That which follows is intended to give the Educational Communications Board and all others seriously concerned about the future of the entire spectrum of Wisconsin education the various alternatives and supporting data from which decisions can be made and the most productive statewide educational communications system developed. A master plan or blueprint of development is provided, but is phased in logical stages of development, should implementation be spread out over a period of time.

The Wisconsin Educational Communications Management Study was concluded with submission of the following report on October 15, 1968.

II. CURRENT STATUS

Wisconsin has long been a focal point for educational broadcasting. Non-commercial broadcasting throughout the United States owes much to the pioneering efforts of certain Wisconsinites. Educational radio and television might not have achieved their present levels of development in this country, had it not been for the dedication and leadership of various people with proud and firm ties to the Badger State.

From conception of the first radio station in the United States to this day, the prestigious University of Wisconsin has substantively influenced the communications industry and the lives of thousands of citizens both within and without the State. The State Radio Council was years in advance a prototype of the many state educational broadcasting agencies, authorities and commissions developing in the decade of the '60's. Through a productive partnership arrangement between the Radio Council and the University, Wisconsin was provided a powerful and beneficial State resource, the statewide FM radio network, which to this day stands unique as a beacon for other states to follow.

Licensed to the State Radio Council, which became the Educational Broadcasting Board and then the Educational

Communications Board,
WHA(FM) Madison,
WHAD(FM) Delafield,
WHKW(FM) Chilton,
WHRM(FM) Rib Mountain Park,
WHWC(FM) Colfax,
WHLA(FM) Holmen,
WHHI(FM) Highland,
WHSA(FM) Brule,
WHMD(FM) Suring, and
WLBL(AM) Auburndale
are currently providing a 77 hour broadcast week.

By means of an FM multiplex subsidiary communications authorization (SCA) transmission, a second or "piggyback" radio program service has been initiated to transmit concurrently over the FM network. Presently about 50 locations about the State, principally hospitals and county courthouses, have the special reception equipment and are regularly provided medical, nursing, extension agent and other programming.

WHA(AM), since 1917 operated by The Board of Regents of the University of Wisconsin, presently programs 100 hours per week.

In addition to the 11 radio stations working on behalf of the Wisconsin State Broadcasting Service, a variety of other important educational radio activities are being conducted by a number of other educational institutions. From production studios to low power transmitters, and student training to program service, a substantial amount of radio activity can be seen locally at state universities and school systems alike.

Similarly, schools and colleges throughout Wisconsin are significantly committed to educational television. A Department of Public Instruction report indicates for the school year 1967-1968 that 871,217 of the 921,032 public school students in the State (88.7%) in 333 of the 487 operating districts (68.4%) had 2771 television receivers in their classrooms, and 49 videotape recorders, and that 40 school buildings already were equipped with closed circuit television systems.

Three Wisconsin educational television stations are providing effective service to portions of the State:

WMVS-TV, Channel 10, and WMVT, Channel 36, Milwaukee, licensed to the Milwaukee Technical College of the Milwaukee Board of Vocational and Adult Education, and;

WHA-TV, Channel 21, Madison, licensed to The Board of Regents of the University of Wisconsin.

In addition to these 3 home-based stations, three out-of-state ETV facilities provide some service to populations segments along the western border:

WDSE-TV, Channel 8, Duluth, licensed to the Duluth-Superior Area Educational Television Corporation, and;

KTCA-TV, Channel 2, and KTCI-TV, Channel 17, Minneapolis-St. Paul, licensed to the Twin City Area ETV Corporation.

All 6 stations bring to their respective coverage areas a full range of instructional, continuing educational and public television fare.

As with the broadcast radio facilities, the personnel serving these TV stations are experienced and professional, their production and broadcast facilities are considerable, administrative leadership is strong, and current program services seem productive and beneficial.

Throughout Wisconsin's tax-supported higher education construct, radio and television systems, facilities and programs are developing at a rapid rate. All 9 institutions of the Wisconsin State Universities System are involved to significant extent; some are already quite deeply committed to closed circuit and other educational communications development. Extensive radio-television development and planning is also evident at the 4 campuses of the University of Wisconsin and its two year centers. The total current capital investment and commitment of the State Universities, their branch campuses, and the University of Wisconsin and its branch campuses, if ever accumulated, would be impressive. When a corresponding compilation of production, programming and distribution equipments, both radio and television, currently in planning for all of Wisconsin's public institutions of higher education are joined with existing resources, the aggregate commitment is truly significant.

The schools broadcasting services, radio and television, as available are experienced and professional. The Wisconsin School of the Air, now in its 35th year, broadcasts to classrooms in every section of the State 7½-10 hours per week of direct radio instruction, plus an additional 15 hours of supplementary instruction. The Milwaukee Public Schools instructional television service, broadcast over the facilities of WMVS-TV and available to suburban school districts within the Channel 10 area, is in its 10th year and merits national recognition. This urban school system is well along towards planning the activation of both an educational radio station and a several channel ITFS system to be programmed in addition to ITV broadcast television.

The production center at WHA-TV, as part of its schools television responsibility, broadcasts 16 hours a week of instructional programs plus additional supplementary fare. Certain Madison ITV programs are currently receiving national distribution.

In a manner typically illustrating Wisconsin ingenuity, over 85 separate schools, public and private, in the Green Bay area have under the aegis of regional Cooperative Educational Service Agencies formed the North Eastern Wisconsin In-School Television Council (NEWIST), assessed themselves according to enrollment, purchased time from Green Bay commercial station WLUK-TV, and are providing 12½ hours of instructional programming per week to over 83,000 students.

Over 6,000 students in the northwestern tip of the State are regular subscribers to the instructional television service of the Duluth-Superior ETV station, WDSE-TV, which service because of a Minnesota state network includes a number of lessons originated in the Twin Cities.

As the 1968-69 school year began, the Archdiocese of Milwaukee inaugurated and began classroom instruction over its new Instructional Television Fixed Service system (2500 MHz) which has an ultimate capacity of 4 channels of simultaneous distribution, once all participating schools have installed their special receiving apparatus. The amount of use of radio and television by private education in Wisconsin is itself substantial.

In a number of areas across the State - Stevens Point, Menominie, LaCrosse, Platteville, planning with local educational, business and industrial leaders towards educational program development is beyond the initial stage.

The above can be considered only a summary of current radio and television educational usage and commitment and is by no means definitive. The listing is made simply to show the extensive development already conceived, the extensive commitment already made, the extensive foundation already laid. Much is being done; there is much upon which to build.

In addition to the educational facilities and program services already reported, several important administrative and organizational developments have recently occurred which are most conducive to additional educational communications planning on a statewide basis. The system of Cooperative Educational Service Agencies (CESA Units) throughout the State offers a most desirable and growing formal mechanism with which to integrate a statewide instructional service for optimum utility. Similarly, the Vocational, Technical and Adult Education Districts established by the Wisconsin Board of Vocational, Technical and Adult Education provide another excellent means of program input and program utilization. Coordination of all Wisconsin post high school education under the Coordinating Council For Higher Education (CCHE) provides a unified organizational structure through which appropriately to involve the resources and talents of all colleges and universities in the State, as well as to see services provided. Passage of Assembly Bill 82 creating the Wisconsin Educational Communications Board within CCHE (See Chapter 349, Laws of 1967: APPENDIX A) provides a duly constituted and appropriate state agency under which future educational communications can be developed for the State of Wisconsin.

It is not as yet generally recognized, but with the passage of this legislation a new phase of Wisconsin educational broadcasting has begun. According to the statute, the Educational Communications Board (ECB) superceded the Educational Broadcasting Board (successor to the State Radio Council), assumed all previous powers and duties and was given additional responsibility. Whereas chief staff administration for the Educational Broadcasting Board and its FM Network and for the University of Wisconsin's broadcasting enterprises was shared by the same individual (a prime factor in the opinion of the writer for development of the nation's only state radio network despite numerous obstacles and traditional oppositions), decision was made early in 1968 to see these two positions separated. As a result, budgets have been separated, and a well qualified and experienced executive director was appointed July 1, 1968 to administer the new Educational Communications Division. Licensing responsibility for 10 radio stations was assumed, as was administrative responsibility for the Board's budget and staff.

With considerable radio and television development throughout the Badger State, with substantial additional planning underway at every level of education, and with a full fledged statewide radio network already in existence, a golden opportunity is presented for Wisconsin to move into yet another important phase of educational communications development. The transition has begun.

III. THE POTENTIAL

Despite the level of development of educational communications in Wisconsin, regardless of the extent of resources already available to the provision of educational radio and television program services, and even in view of the extent of expertise in the State, there pertain certain problems which must be addressed.

As the Technical Report details, the state FM network is operating in large measure with antiquated and insufficient equipment. So serious is the problem that broadcast equipments for the radio network must either be given immediate and major attention, or the statewide service phased out. Linkage between the various transmitters of the network is provided by means of off-air reception, rather than the more desirable and reliable direct line or microwave interconnection. As beneficial as it is, the state radio service must basically originate from one Madison control point; the additional flexibility and sophistication of local program break-aways from the network to service specialized regional needs (reported from every section of the State as highly desirable) is currently not technically possible. The real potential of the bonus second radio service (SCA) has not been tapped.

Even after 11 to 14 years of program operations and despite their relatively close proximity, Wiconsin's ETV stations are still not interconnected and reaping the program service and economic benefits of shared facilities. These stations are not providing the full extent of broadcast coverage possible and allowable by the Federal Communications Commission with the use of modern transmitters and antennae at appropriate heights above ground. As a result, many school children must make do with an unrealiable and inferior television picture. Others are denied the service entirely.

Furthermore, the various benefits of the ETV stations' instructional, in-service and public television programs are not available to every student and home viewer throughout the State on an equal basis. Such programs are provided only to certain restricted areas of the State and to but a percentage of the total population. By happenstance of birth and residence, vast numbers of Wisconsin citizens are deprived of these program services which are rapidly increasing in importance.

Twenty-eight states are either currently operating state ETV networking systems or are in an advanced stage of planning and development for authorized systems. (SEE APPENDIX B) The extent of financial support by these states for networking activities is contained in APPENDIX C. An additional 12 states have state networking designs currently under review. As the second half of 1968 began, Wisconsin was one of only 10 states as yet with no formal state ETV network development plan or commitment.

Closer to home, Wisconsin's 4 neighboring states are all in advanced stages of educational television development. An 11 station ETV network plan plus coordinated educational media development has been prepared under Michigan Department of Public Instruction auspices. A 4 station Minnesota state ETV network is operative. The Iowa Legislature has funded the initial phase of an elaborate state ETV networking system. And the Illinois Telecommunications Commission has contracted for the development of a consolidated educational communications plan incorporating the state's 4 existing ETV stations in an expanded statewide system. The programming resources of these 4 states could readily be available on an exchange basis.

The NEWIST instructional program service, whose initial effort is highly to be commended, is built upon less than a firm foundation. The council's director correctly reports the need of a much larger quantity of broadcast time effectively to assist member schools than the 2½ hours per day presently being purchased. For good and sufficient reason, the commercial station providing the broadcast facilities may at any time be required to preempt the instructional block for other programming.

The preceding chapter referred to the rapidly growing ETV and radio systems and equipment inventories throughout the State and at every level of education. In short time, every college campus will have at least one closed circuit television origination and distribution system. Broadcast transmitters are in the plans of many of the State's institutions of higher learning and some school systems. Without a statewide master educational communications plan, logically developed and phased over a period of time, covering radio and television at the very least, there could develop such a proliferation of equipments, such a conglomeration of duplicative efforts, such a hodgepodge of incompatibility as to result in an educational, administrative and economic nightmare.

But the reader is cautioned against becomming too pessimistic after scanning this summary of problems. In addition to the many advantages and resources already cited in the previous chapter, certain other developments, both at the state and national levels, must be called to attention. Nationally, the state of educational broadcasting is in the strongest position of its several-decade history. The Educational Television Facilities Act of 1962 provided up to $1 million per state in matching grants for capital equipment. Even though during the 5 year period the Act was in force Wisconsin was able to qualify only for $482,475 (all of which was applied for and received by the Milwaukee Board of Vocational and Adult Education), with passage in Congress of the successor Public Broadcasting Act of 1967, additional funds are soon to be appropriated, for both radio and television equipments ($38 million is authorized over a 3 year period) and, it is believed, on a recurring basis. Wisconsin can be in excellent position to avail itself of this prime financial resource.

Fifteen prestigious individuals have accepted appointment to the Board of the Public Broadcasting Corporation as authorized by the federal government. The PBC, as it develops long term plans and reaches for the long range objectives initially established - with considerable national support - by the equally distinguished Carnegie National Commission on Educational Television[1], will play a vital role in the future improvement and expansion of both educational radio and television. Substantial and significant benefits in the form of better and more programming, national and regional interconnection, and operational budget support cannot help but accrue to each state which has developed its networking plan.

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[1] Public Television: A Program For Action, The Report of the Carnegie Commission On Educational Television; January, 1967, Bantam Books, Inc., New York, New York.

Acquisition programming sources are at an all-time quality and quality level. National Educational Television (N.E.T.), together with the Public Broadcasting Laboratory (PBL), this fall will make available to its affiliates for a token fee a quantity of pertinent and varied programming of considerable stature. An additional body of recorded programming awaits inexpensive recall in a regular reservoir. Through the facilities of the Educational Television Stations Program Service, the best productions of the nation's 157 operating public television stations is exchanged. More and more program properties are becoming available on a non-commercial basis from sources other than the ETV stations, especially overseas sources.

Three programming services are economically providing ETV stations a growing quantity of superior instructional television lessons, pretested and for every educational level: the Great Plains National Instructional Television Library, the National Instructional Television Center, and the Midwest Program in Airborne Television.

As the result of efforts generated through the Carnegie Report and the Public Broadcasting Act, educational radio has entered a period of renaissance and revitalization. The National Educational Radio (N.E.R.) program service is ever improving and expanding. As the direct result of continued financial assistance from private foundations, radio as well as television is experiencing a live and recorded educational program availability never before possible.

National interconnection is already available to Wisconsin's television stations, as their counterparts, on an occasional demonstration basis. Present indications are that the nation's radio and television stations will be permanently interconnected, by traditional or satellite means, within the next several years. Thus the door to even stronger national program services is opened.

Regional networks continue to strengthen. The Central Educational Network, which serves Wisconsin and 12 other midwestern states, has already developed a viable recorded program exchange, and is laying plans towards future live program exchange and cooperative production.

National organizations such as the National Association of Educational Broadcasters, the U.S. Office of Education and the Department of Audio Visual Instruction of the National Education Association each year increase their supportive services.

As a result, a full spectrum of ever-improving program services can be provided via state educational broadcasting networks. Educational, instructional and public television stands at the threshold of becoming a truly distinctive and influential social force in American society. With a decade and a half of experience, ETV has departed the experimental status, and is taking its appropriate and permanent place within the formal and informal American educational construct. A vast body of research and experimentation as conducted over a 15 year period is condensed and readily available in book, periodical and journal form to attest to the usefulness of these educational media. The potential, therefore, exists for Wisconsin to enter a second plateau of educational communications development.

With educational radio and television at its present position within the State, with the national movement at its present apex, and with electronic technology at its most advanced level, the timing of the Educational Communications Board technical and management studies is most appropriate. Wisconsin is in position to take fullest advantage of all existing resources, as well as of the successes and failures of its sister states which by trial and error have established their networks. With due consideration given all such factors, the recommended Wisconsin networking plan and blueprint for action are presented as follows.

IV. THE PLAN

One prime advantage the State of Wisconsin has over other states considering educational broadcasting networks is that the legislative decision concerning policy and administrative leadership at the state level has already been made. Assembly Bill 82:1967 (See Chapter 349, Laws of 1967: APPENDIX A) states that:

> "...It is the intent of this act to provide for the improvement and broadening of educational opportunities, to maintain and strengthen educational quality for steadily increasing numbers of Wisconsin young citizens, and to assure maximum economies made possible by new electronic teaching devices by designating the co-ordinating committee for higher education as the agency responsible for reviewing and supervising both noncommercial educational broadcasting by radio and television and electronic interinstitutional connections. The educational broadcasting board is reconstituted as the educational communications board and designated as the head of the division of educational communications of the co-ordinating committee for higher education, responsible to the parent body for policy recommendations and for the administration and operation of noncommercial educational radio and television, and for review and supervision of such services as are contracted to other agencies...."

Therefore the question other states face as to whether to see established a new administrative agency, authority or commission, or to place policy responsibility for educational communications in an existing agency is moot. Study by this outsider of Wisconsin's educational structure and statutory responsibilities of the Coordinating Council For Higher Education indicates the appropriateness of the decision to place state responsibility for educational communications within the Educational Communications Board and Division. However, certain recommendations concerning the composition, the scope of duties and responsibilities of the Board, and basic policy decisions facing the ECB should be addressed prior to describing the recommended networking plan.

Educational Communications Board Composition

The Educational Communications Board, successor administrative body to the Educational Broadcasting Board, is composed of the following:

The Governor or his representative	Stephen T. Boyle Administrative Assistant Executive Office
The President of the University of Wisconsin or his representative	Professor Henry L. Ahlgren Assistant Chancellor University Extension
The Superintendent of Public Instruction	Mr. William C. Kahl
The Secretary of the Board of Regents of State Universities	Mr. Eugene R. McPhee
The Director of the State Board of Vocational, Technical and Adult Education	Mr. Clarence L. Greiber
A University member appointed by the Regents	Chancellor Donald R. McNeil University Extension
Three Citizen members appointed by the Governor	Mr. Ben Laird Radio Station WDUZ Green Bay

Mr. Anton J. Moe
Executive Vice President
and General Manager
WKOW Radio and Television
Madison

Mrs. Bernice M. Quick
Horicon

Survey of the composition of educational communications agencies, authorities, commissions and policy boards in other states reveals that representations from the following interests and positions are most frequently included:

- commissioners of education and state superintendents of departments of education;
- state governmental cabinet officers;
- other agencies of state government;
- private and parochial elementary/secondary education;
- private higher education;
- public elementary/secondary education;
- state university presidents or their designees;
- higher education system board members or officers;
- boards of education;
- cultural agency staff heads or their governing board members;
- commercial broadcasting and allied entities;
- other communications media;
- ETV station managers or university television center heads;
- state educational agencies or organizations;

- instructional television compacts;
- distinguished lay citizenry.

Study of the Wisconsin Educational Communications Board in the light of the State's current and predicted educational needs serviceable by an educational communications networking system reveals that there exists on the Board double representation from the University of Wisconsin, no representation from private and parochial elementary/secondary or higher education, and possibly insufficient representation from formal education at the pre-college levels. Therefore, it is recommended that the Educational Communications Board seek legislative amendment to reduce University of Wisconsin representation on the Board from two to one, to fill the vacancy with a representative of private higher education, and to enlarge the Board by 4 members to 13 to permit addition of a representative from private or parochial elementary/secondary education, a representative from public pre-college education, and two representatives of boards of education. Further, it is recommended that the new legislation set terms of office and establish a system of rotation for all appointive Board members other than those holding membership by virtue of their office, to allow for a continuous influx of fresh thinking and orderly transition.

During the State Radio Council period, because of the extent of University leadership in the radio network development, double representation was appropriate. With the ECB and separation of functions, reduction will continue to allow the prestigious resources of the University to be directly represented, but will provide more Board balance.

ECB Duties And Responsibilities

The charge to and fundamental responsibilities of the Educational Communications Board are stated in 1967 Assembly Bill 82 (SEE APPENDIX A). The Legislation indicates that the Board shall be responsible for:

- reviewing and supervising both noncommercial educational broadcasting by radio and by television and electronic interinstitutional connections;
- policy recommendations and for the administration and operation of noncommercial educational radio and television;
- review and supervision of such services as are contracted to other agencies;
- developing educational radio and television into a vital public resource for the enrichment and education of the people in Wisconsin and to provide assistance in state classrooms;
- receiving and disbursing state, federal and private funds and engaging or contracting for such personnel and facilities as deemed necessary to carry out the purposes of the Legislation;

- initiating, developing and maintaining a comprehensive state plan for the orderly operation of a statewide television system for the presentation of noncommercial instructional programs which will serve the best interests of the people of the state now and in the future;

- working with the educational agencies and institutions of the state as coordinator of their joint efforts to meet the educational needs of the state through radio and television;

- furnishing leadership in securing adequate funding for statewide joint use of radio and television for educational and cultural purposes;

- leasing, purchasing or constructing radio and television facilities for joint use, such as network interconnection or relay equipment, mobile units, or other equipment available for statewide use;

- applying for, constructing and operating radio and television transmission equipment in order to provide broadcast service to all areas of the state;

- establishing and maintaining a continuing evaluation of the effectiveness of the joint efforts of all participating educational institutions in terms of jointly established goals;

- acting as a central clearinghouse and source of information concerning educational radio and television activities in the state, including the furnishing of such information to legislators, offices of government, educational institutions and the general public;

- filing applications after appropriate engineering studies and feasibility surveys for the construction and operation of noncommercial educational radio and television transmitters in stipulated vicinities around the State;

- establishing and operating, as soon as practical, an interconnection between the broadcast facilities and higher education campuses to facilitate statewide use of closed circuit and broadcast radio and television for educational purposes, and;

- seeking to cooperate with similar bodies in other states and participating in regional and national network planning so as to insure maximum educational benefits for the people of Wisconsin.

The scope of duties and responsibilities is specific, yet purposely broad to enable ECB as an arm of the Coordinating Committee in large sense to chart its own course.

It will be helpful to the Board itself, to its Divisional staff, and to all educational interests in the State due to be influenced by ECB policy for the Board very early to elaborate more fully on those areas it will directly regulate and administer, and those areas for which it will have only indirect concern. To assist with that delineation, the following elaboration of duties and responsibilities - gleaned from other state educational communications agencies and the Wisconsin study - is urged:

- the Board will develop and adopt a statewide plan and policy for initial development of educational communications for Wisconsin, and will on a sustaining basis revise the master plan in light of proven need, priorities, available resources and effectiveness;
- the Board will be directly responsible for the administration and programming of and hold license to all new educational radio and television stations necessary to provide regular broadcast service on a statewide basis;

- the Board will not exert direct control over radio, television and other educational communications facilities, programs and systems of public educational institutions, except as they directly relate to the statewide service. (Many such systems will develop on tax-supported campuses in coming months. Base authority, however, will belong to the parent educational entity.) In order to prevent needless duplication, incompatibility of equipments and programs and a proliferation of needless developments, and to promote efficient and appropriate consolidation, sharing of resources and greater educational economies and productivity, the Board will, on behalf of CCHE, act as a central reviewing authority, take a firm hand in coordination of public higher education's educational communications design and development, and provide an evaluation and approval service, both budgetary, program and technical, on behalf of CCHE and other branches of state government. (By law, the Bureau of Engineering must approve major technical equipments and installations such as campus CCTV studios and distribution systems, broadcast or otherwise. The Educational Communications Division should work closely with personnel of both the Bureau of Engineering and the Bureau of Budget and Management, evaluating proposals on behalf of the two Bureaus and CCHE to insure optimum consolidation and value);

- through its engineering section the Board will provide a variety of technical counsel and advice to schools and colleges throughout the State. (Neither the Management nor Budget Bureau has the staff or time to provide the detailed technical counsel required for the rapidly emerging and complex educational media developments. The University of Wisconsin has done its best to fill the void; but regardless of their expertise, such is not their responsibility. It rightfully belongs to ECB. This looms as a major service function of the new Division.);
- in addition to serving as a clearinghouse for information for state agencies and legislators, the Board will develop a continuous technical specifications, technical standards, production, program and utilization information service for all levels of education, public and private, and otherwise serve the functions of collation, orientation, evaluation and dissemination on behalf of the schools and colleges of the State;

- the Division will develop a central state library of audio and video tapes readily available to individual Wisconsin educational communications systems, similar to the system employed by the New York State Department of Education;
- the Board will be responsible for establishing policy of a jurisdictional and operational nature, such as developing for CCHE and Wisconsin education general guidelines concerning royalties and residuals for teachers and producers developing educational communications materials;
- the Board will not concern itself with radio and television as communications arts subject matter for educational curriculae. (Academic coordination is more properly a responsibility of CCHE, unless there develops direct relationship to ECB's prime function.);
- the Board will serve as the duly designated State of Wisconsin agency responsible for evaluating and endorsing according to the master state plan applications, proposals and grant requests to federal and other agencies. (At the consultant's urging the ECB has already formally informed the Federal Communications Commission and the Department of Health, Education and Welfare of this posture.)

- the Board will assume responsibility to develop and maintain an effective instructional television fixed service (ITFS) for Wisconsin, in concert with the Federal Communications Commission, to insure maximum utility of this educational resource;
- the Board will, as part of its basic responsibility to program the state networking facilities, review time conflict requests of the several educational users, and devise the most equitable and educationally meaningful allocation of network scheduling for all of Wisconsin's citizenry;
- in conscientious fulfillment of its responsibility as programmer of the networking facility, the Board will at the earliest moment develop a firm, concise initial network program policy statement for statewide educational broadcasting services, to guard against potential problem areas such as commercialization and propaganda, and provide guidelines for development of the best possible program services. (The educational objectives and program guidelines policy statement, as drafted by the ECB Policy Sub-Committee and currently under consideration by the Board, is an excellent initial effort. Such a statement will need continual scrutiny and revision).

The ECB may itself wish to study state statutes covering the establishment and responsibilities of other ETV authorities (SEE APPENDIX D).

Recommended additional duties and responsibilities of the ECB are included in succeeding pages which describe the proposed networking plan. The Educational Communications Board, a new and relatively unknown agency of state government, must move with reasonable speed to develop confidence, assert leadership and establish itself among the Wisconsin educational fraternity it will work with, serve and coordinate.

Basic Policy Considerations

Four basic policy decisions face the Educational Communications Board as it charts its course, determines its priorities and establishes its initial objectives. These encompass fundamental questions, the answers for which must be provided before technical systems can appropriately be devised. All such planning realistically flows from these decisions.

The policy decisions all derive from the important tenet that educational communications are a fact of life, will be used increasingly throughout the formal educational construct, and will take their rightful place contributing productively to teaching and learning. Although the 4 basic decisions are essentially outside the purview of the consultant's responsibility, they so interrelate to the specific assignment as to mandate comment and recommendation. The questions are as follows:

1. Can the Educational Communications Board simultaneously apply all educational communications to the needs of all levels of Wisconsin education in the quantities ultimately desirable? The answer must be in the negative. The ECB cannot immediately be all things to all people, but rather must logically and systematically develop its program of accomplishment. Education cannot meaningfully assimilate multiple channel educational communications programming on a crash basis, but must adjust to its use in predetermined and studied manner. Time is essential to conceive and execute effective programming, production, distribution and utilization of instructional radio and television lessons - especially in quantity. These are complex systems. The other educational and electronic media, while exhibiting great potential and while certain ultimately to take their rightful and

useful place in the educational spectrum are so new as to require deliberateness of development - especially on a statewide basis. Lastly, financing in the order of magnitude necessitated for such state systems dictates a phased development of educational communications in Wisconsin or any state.

2. In such initial consideration, should the Educational Communications Board develop a radio and television plan for the State, or a television only approach? In the ultimate, the answer can only be a plan which considers all educational media, using each medium in isolation for those things the particular medium can uniquely do, and the media in combination to derive additional educational and economic benefit. In its FM network, Wisconsin has a major state resource of imposing potential. As the only state with a border-to-border educational radio capability, Wisconsin has the unique opportunity to develop this facility in tandem with a companion ETV network. True, the radio system does need major overhal. Its program offerings need re-examination. Its interconnection mechanism is badly lacking. And there is little possibility in the present system for local input. But a consolidated system can be

developed - surprisingly economically - which enables both ETV and radio networks to be operated from common sites, using the same interconnection apparatus, operating personnel and administrative control, with provision for local breakaway. In a day when school systems, colleges and universities and state agencies are activating more and more educational radio stations, it would be tragic indeed to see the pioneer Wisconsin State Radio Network abandoned - especially since radio is ever present, is highly mobile, possesses unique communications capabilities, and programs so economically. All that is needed is equipment attention and additional program input more vitally and directly integrated with the Department of Public Instruction and the formal instructional process. Here is a magnificent opportunity to employ on a statewide basis radio and television individually and complementary for systematic instructional purpose. The program possibilities, especially for the small enrollment schools, are enormous.

3. What educational level or levels should receive priority attention with the statewide educational television system? Elementary? Secondary? Vocational? The University of Wisconsin and State

Universities Systems? Professional In-Service? Continuing? Adult? Obviously all cannot at once be serviced systematically and in quantity. As has been done in virtually every other state operating an ETV network, a phased approach is recommended. Basic and prime attention is devoted the elementary/secondary educational levels at the outset, with lesser but important attention paid the other levels. Only with a multiple channel facility can another approach be taken. Further, it is generally recognized that elementary education is most conducive to quick and productive utilization of instructional television programming, and that shared use of ITV at the collegiate level is more difficult to achieve. Wisconsin faces a real challenge to use ITV on a statewide basis as an equalizer of educational opportunity. With a total of 1,172,052 public and non-public elementary-secondary youngsters, the State has a solid base and need for a strong and viable ITV service. As reported earlier, in terms of program use and classroom equipment, there is considerable precedent and receptivity at the K-12 level. It would be a mistake for Wisconsin to install a costly television system interconnection various state campuses until detailed planning as to programming and use have been completed. Meanwhile, as a first stage, profitable attention can be devoted to the lower grade levels. As with the question concerning one medium versus another, the ultimate answer must be that systems should be provided to serve all educational levels. But a step-by-step approach is advised.

4. Should the ECB initially consider a one-channel broadcast ETV system, or begin statewide development with a multiple channel closed circuit network? In view of program services initially to be rendered, in view of educational receptivity, in view of the cost, and in the light of political considerations, it is submitted that Wisconsin should begin with a one channel broadcast ETV network and, as soon as such service is provided statewide to all schools and homes, undertake development of a companion closed circuit television facility. All operative state ETV networks and those in planning, save two (SEE APPENDIX C), are employing this approach. Because of its small size, Delaware has developed a CCTV network. South Carolina (roughly half the size of Wisconsin) began with a one-channel closed circuit system connecting nearly all secondary schools in the

state. To reach the important elementary audience and the general audience, the southern state subsequently added a 4 station broadcast network to its system.

Broadcasting provides the only means economically to reach both the elementary, secondary, vocational, college, professional and home audiences with the same facility. True, the amount of program time for any audience segment is limited. But ITV is a complex mechanism. In each state, educators must begin its use modestly; they must walk before they run. To do otherwise is to invite catastrophy.

Following the Carnegie Commission Report and the Public Broadcasting Legislation, the attention being devoted to a general informational, educational and public affairs program service for home viewers of all ages is so great, it would indeed be unfortunate to see Wisconsin develop an extensive but incomplete ETV system which denies this service to most of the State.

A vast amount of programming, or software, is required for any distribution system. Even with one channel, the time, effort, staff and budget required to produce a full schedule of quality programs is substantial. As indicated earlier, time is needed to prepare any level of students to receive the fullest benefits of instructional television. Those activating CCTV systems are inevitably required to begin with but one channel of programming, and slowly increase the volume to take advantage of the additional simultaneous distribution lines. It is submitted that the wiser approach on a statewide basis is to provide one channel service throughout the State, then expand.

Even discounting previous points, the costs involved are of such magnitude as to all but dictate the recommended approach. The Technical Report specifically addresses this point, and provides a cost comparison.

Lastly, from a practical point of view there is a political consideration. In order to vote approval of the substantial appropriations needed for even a broadcast ETV network, legislators must be assured that the district they represent will without undue delay receive benefit. The quickest way to provide such service is through the recommended broadcast state TV network.

> Nothing in this section should be construed as in opposition to closed circuit television. To the contrary, the multiple channel capacity of CCTV is highly desirable and ultimately a necessity. But a phased approach can be the only appropriate course to follow. Whatever the decision, it should be made unmistakably clear that the intent of the ECB is to develop a plan whereby all citizens of the State of Wisconsin eventually receive the benefits of the educational media.

It is submitted that the above responses to these 4 basic policy questions are completely consistent with the letter and intent of the legislation establishing the Educational Communications Board. Further, the recommended approach and conclusions are in accord with the first drafts of the ECB Initial Objectives and Program Guidelines as authored by the Policy Sub-Committee and under consideration by the Board.

The Recommended System

In light of the foregoing basic policy determinations, it is recommended that a technical distribution system composed of 9 FM broadcast transmitters and 11 broadcast television transmitters be activated as the initial stages of educational communications network development in Wisconsin, according to the administrative, technical and fiscal plan described as follows.

In any state networking broadcast system, radio or television, 5 operational elements must be present:

- broadcast stations;
- a network switching and operations center;
- interconnection of stations and network center;
- programming, and;
- production.

Management considerations for the 5 networking elements will be discussed individually, together with a summary of the engineering plan as detailed in the Technical Report.

Study of state networking plans across the United States reveals two basic management extremes, with a number of variations between. On the one hand, in states such as South Carolina, all networking elements are owned by the ETV Commission in a highly centralized approach. All broadcast licenses are held in the name of the Commission. The network operations center is manned by network staff reporting to the Commission, as is the base production center. Network interconnection and program control also are the responsibility of the state agency. This approach lends itself to an efficient networking system of considerable quality.

At the other extreme is an equally workable highly decentralized management approach as exemplified in the New York State network and in the system developed for the Commonwealth of Pennsylvania. Here, all broadcast transmitters are individually licensed to different non-profit community corporations or universities. Production centers at each of the ETV stations serve the network; the state ETV agency operates none, but provides the network operations center and interconnection services. In this decentralized approach, the state agency serves as coordinator, working with the individual licensee to plan network programming and to improve the individual broadcast services.

The vast majority of the state ETV networks operate at neither of the extremes, but at various intermediate points. In general, the South Carolina approach is easier to install and more appropriate in the lesser populated states whose population centers are diverse and public education structures less complex, and in states where a minimum of educational broadcasting activity has developed. The decentralized networking system is more appropriately employed in the densely populated states with the more sophistocated and complicated public education structures, with greater varieties of resources and with a number of individual ETV facilities extant. In general, the greater the number of independent ETV activities and the greater the precedent of autonomous operation, the more complicated the state networking activation and the more decentralized the networking approach.

In each case, the state networking system must be specifically tailored to the individual state's particular resources and needs. The management plan recommended for Wisconsin recognizes this custom design, and appropriately calls for a combination of ECB ownership and coordination with the other experienced educational broadcasting agencies and interests within the State.

Broadcast Stations

In terms of radio networking, the State is in an enviable position. Currently 9 FM stations and 1 AM station are operating under the ECB. All are licensed to the Board. It is recommended that all 9 FM base stations of the state radio network continue to be licensed to the Educational Communications Board, and that the Board sell the license to and facilities of station WLBL, Auburndale (possibly to an educational institution such as at Stevens Point). Transmission and monitoring equipments at all 9 FM transmitter locations are to be improved according to a several stage plan. Five of the radio stations transmitters - Brule, Colfax, Holmen, Madison and Rib Mountain Park (Wausaw) - should continue to be located at their present sites, but ultimately should be improved and co-operated in conjunction with new ETV station transmitters sharing the sites. (SEE FIGURES 1 AND 2, TECHNICAL REPORT) The radio transmitter at Delafield for technical reasons should continue to broadcast from its present location as a radio-only operation. Three radio transmitters should be relocated on taller towers at new ETV transmitter sites, to improve FM coverage and enable tandem operations: Chilton to DePere, Highland to Platteville Mound, and Suring to Lakewood. As the Technical Report indicates, these actions will at relatively modest cost provide Wisconsin with modern, professional and reliable statewide radio program coverage.

The bonus radio point-to-point service currently provided with subsidiary communications authorization (SCA) via sub-carriers on the FM channels at the same time will be improved. SCA relay is currently provided by off-air relay of the sub-carriers; the plan calls for a more reliable and technically proficient microwave interconnection. Thus Wisconsin will have several additional channels of radio service virtually without cost.

To enable a reliable one-channel educational television service on a statewide basis, an 11 station network is recommended according to the following plan. Existing stations WHA-TV, Madison and WMVS-TV, Milwaukee are to be base stations of the network. In stages, new television stations should be activated at Platteville, Holmen, Wausau, DePere, Colfax, Oshkosh, Lakewood, Minacqua, and ultimately at Brule (SEE FIGURE 3, TECHNICAL REPORT). The Madison and Milwaukee transmission plants will likewise require certain new equipments. As one of the final stages, 3 low power television translators should be constructed in the Sturgeon Bay, Richland Center and Frederick areas to insure adequate reception. This 11 station, 3 translator network system will bring the full schedule of ETV program services to every school and college classroom and virtually every home in the State.

It is recommended that licenses to all 9 new ETV stations and 3 translators as constructed be held in the name of the Educational Communications Board, and that all 12 sets of transmission equipments be titled to and operated by the Board. In the cases of the 2 existing stations, Channel 21, WHA-TV, Madison, and Channel 10, WMVS-TV, Milwaukee, it appears that 3 courses of action could apply. The ECB could either:

- arrange with the Federal Communications Commission to transfer licenses to the Board, and arrange to purchase the existing broadcast stations from the Board of Regents of the University of Wisconsin and the Milwaukee Board of Vocational and Adult Education;
- arrange to activate new TV channels licensed to the Board to serve these two most heavily populated areas of the State, or;
- enter into an agreement with each of the present licensees to see the 2 stations operated as basic segments of the Board's State ETV Network according to Board requirement, while still protecting the autonomy of the licensees and providing local program service.

The first alternative has the advantage of organizational efficiency and places all broadcast transmitters under the direct administration of the ECB. However, it also has disadvantages. Informal contacts with both licensees indicate enthusiastic willingness to cooperate to the fullest with the Board and its proposed ETV network. But neither licensee appears in any manner interested in relinquishing its station title. There appears no way in which either licensee would willingly give up its station. In the ultimate in direct confrontation, the ECB has the statutory power to assume title. But the struggle could divide otherwise strong allies at a time when unanimity is required to achieve legislative approval and appropriation, and could provide opponents with the very ammunition needed to scuttle the entire networking development. Further, the two stations have a combined operating experience of over 25 years, and the two best, most well equipped and production-experienced staffs in the State. Without the obligation of a broadcast transmitter, there is no assurance that either institution would directly and productively relate to the network. Both the University and the Milwaukee Technical College have student training programs requiring laboratory production facilities, have responsibilities to produce instructional materials for use on their own campuses, and produce programs for national distribution; the two institutions could devote their total resources to servicing these needs. To lose the Milwaukee and Madison production expertise and programming resources would be tragic as well as costly to the State. Expensive new production facilities conceivably would be required.

In strong sense, relinquishing these communications resources with traditions of service built over 11 to 14 years would be like taking away an agricultural experiment station or laboratory school, and would be penalizing these two institutions for their early leadership and progressive actions. In no instance in any other state has a state ETV authority seen fit to transfer licenses; in each case, arrangements have been made for cooperative network development.

The second alternative is unrealistic as well. In view of the magnitude of capital and operational costs for an ETV transmission facility, ECB operation of its own stations in the Madison and Milwaukee areas, with duplicate coverage and similar program service, appears highly questionable and politically unfeasible.

It is recommended, therefore, that the ECB enter into contractual relationship with each of the licensees to enable both WHA-TV and WMVS-TV to be operated as part of the Wisconsin State ETV Network. Specifically, an equitable agreement between the Educational Communications Board and the Milwaukee Technical College of the Milwaukee Board of Vocational and Adult Education should include the following provisions:

- the College agreeing to operate Channel 10 as a basic broadcast station of the state network; agreeing to a network option-local option affiliate arrangement wherein certain time blocks each broadcast week are designated for network programming and certain others for non-network programs designed to service localized needs (the specific amounts and times to be mutually determined on an annual basis), and; agreeing to make available to the State network its locally produced programs without charge, and;
- the Board assuming responsibility for capital improvement of the Channel 10 transmission facility, and responsibility for annual reimbursement to WMVS-TV of costs of operating the Channel 10 transmission facility as part of the state network, and at appropriate times commissioning the WMVS production facility to produce certain programs for the network according to a mutually agreeable fee.

The ECB/University of Wisconsin agreement should include the same provisions, with the exception of capital improvement of the Channel 21 transmitter. The 1969-1971 University appropriations request already includes funds for new transmission apparatus, and should be supported by the Board.

This arrangement protects the autonomy of the local licensee where desirable. It allows for local program service as conceived and executed by residents of that locality, a factor inherent in award of any license by the Federal Communications Commission. This local service responsibility is of prime importance in the eyes of the federal regulatory agency. At the same time the arrangement allows the two stations to be functional cooperating segments of a unified state networking system in the most economical and productive manner possible. It takes fullest advantage of equipments, personnel and program resources already in existence.

The recommended arrangement has the advantage of immediacy; it allows the two stations' program services to be made available to the network at once. The agreement provides the ECB with its choice of large amounts of programming most economically and easily. And the partnership arrangement enables all three entities to work as one for the development of the best possible television service for the people of Wisconsin.

Activation of the Brule ETV station in the northwest section of the State is purposely delayed until a latter stage of development to allow for an experimental relationship between the ECB and an out-of-state ETV station. WDSE-TV, Channel 8, licensed to the Duluth-Superior Area Educational Television Corporation, serves over 6,000 Wisconsin students the current school year. (The school systems, interestingly, pay the formula assessment for the ITV service to Channel 8.) The Superior school system, one of the original developers of WDSE-TV is expected to join in the near future. Dating back to 1952 when the channel was assigned by the Federal Communications Commission to the Duluth-Superior area, the station has been operated as a regional facility which ignores state boundary lines. Review of the corporation's minutes attests to operation of the facility on a bi-state basis. Ten Wisconsinites are members of the corporation's board of trustees.

The ETV Station currently uses various series produced by the Madison and Milwaukee ETV stations. Because there exists considerable precedent for cooperation, it is recommended that the ECB join with the Duluth-Superior Area Educational Television Corporation in developing an agreement similar to those recommended for the University and the Technical College. With limited population in the Duluth-Superior area, it would be most unfortunate to see a non-profit community station and a state-supported station, with near duplicate service areas and program schedules, locked in competition. If a successful working relationship can be achieved to allow WDSE-TV to serve as a segment of the Wisconsin State ETV Network providing service to the northwestern section of the State, construction of the Brule TV facility will not be required. This concept can be put to test by the Educational Communications Division prior to activation of an additional Wisconsin station through a recoreded program shipment scheme.

The Milwaukee Technical College should continue to operate, program and fulfill licensing responsibility to WMVT-TV, Channel 36. This allows the Milwaukee Public Schools system, the largest in the State, to continue to employ a broadcast station for classroom instruction. It allows the Technical College to emphasize vocational programming for its area and address the specialized needs of this industrial urban community. Similarly, the University of Wisconsin will be able to program its WHA in the Madison area to meet the particular requirements of that institution. As other educational radio stations are activated by schools and state universities, these, too, will basically be operated independent of the network to meet special local program needs not adequately served by the single state network FM station in the area. Should these separate facilities at any time wish to simulcast or re-broadcast network programming, arrangements can easily be made.

Network Operations Center

Each networking system requires a central location for program switching, coordination and delay. In the case of the Wisconsin educational radio network, the switching center is currently located at Radio Hall on the University campus, and the function is being performed by WHA personnel. For the proposed ETV network, a similar center is required to handle recording and delay broadcasting operations, to switch from the several production origination points, to monitor and control the interconnection system, and to serve as input point for national, regional and interstate networking.

For reasons of accessibility, practicality, geography and public relations display, the Network Operations Center (NOC) for the Wisconsin educational communications network should be located in the Capital City.

Two locations present themselves for network operations center consideration. The ECB can activate its NOC in leased or new quarters at an appropriate Madison location. Or the ECB can arrange with the University of Wisconsin to include the NOC in its new $8.6 million Communications Arts Building. It is recommended that the Educational Communications Board in its contract with the Board of Regents of the University of Wisconsin arrange for suitable space to be provided at no charge to the ECB in the new Communications Arts Building to house a combined radio and television (plus future additional educational communications) network operations center to be staffed by network employees operating equipments titled to the network.

Federal and state funding for the new University building have been authorized; preliminary approval of all state agencies received. Construction of the structure is due for completion by the spring of 1971. The blueprints call for a modern multiple-studio radio and television production facility to service the land grant institution's varied teaching, research and service needs. University officials have made no plans to house the NOC, but in response to inquiry from consultants have indicated willingness to accommodate the control center, so long as the total building project is not delayed. Rather than a separate unit, in certain sense duplicative, located several blocks from this modern communications arts complex, the NOC more economically and functionally should be located adjacent to this major network production facility. By so doing, additional operations backup can be provided in terms of both personnel and equipment. Desirable separation of authority and identity for both personnel and equipment, can still be maintained. In the future, as the network matures and programming volume reaches an advanced level, as various closed circuit television and other educational communications services are initiated, and as UWM space needs grow, the ECB may well wish to relocate the NOC in a joint facility with network headquarters staff separated from the University.

Until the Communications Arts Center is constructed, the ECB should arrange with the University to continue to provide network control radio services and to initiate temporary network television switching services.

N.E.T., PBL and C.E.N. network programming will be provided all stations of the ETV network, including WHA-TV and WMVS-TV, from the NOC. Staffs of these licensees, according to plan later described, will join with the network program director and others in a public television program advisory cabinet which mutually determines the network out-of-school general television schedule to be recommended to the ECB. Similarly, the state network radio schedule will be determined. All licensees will maintain network and program affiliations, but national and regional programming, heretofor provided directly to individual Wisconsin educational stations, now will be fed directly to and distributed from the network center. This will result in operational savings to both WHA-TV and WMVS-TV. (Since the national network routing runs from Chicago to Milwaukee to Madison, and with the State's largest city an occasional national network originator, a Milwaukee loup should be maintained.)

The recommended NOC plan will provide a most modern and professional network switching control facility capable of handling all present and predicted intrastate, interstate, regional and national networking needs. As satellite interconnection becomes reality, the network operations center will serve as the Wisconsin ground-based reception point from which signals are distributed.

Interconnection

The interconnection system proposed for Wisconsin's radio and television network, as outlined in the Technical Report, provides a modern, flexible, professional linkage of good quality. The network operations center is permanently connected on a 24 hour per day year round basis with all network radio and television broadcast transmitters, with the Madison and Milwaukee ETV production centers receiving two way rountings because of heavy program traffic. The sending and receiving lines are similarly extended to the Central Educational Network's control point and the ETV stations in Chicago. Video routings are both monochrome and color capable.

The interconnection system proposed is basically a master communications pipeline, stretching across the length and breadth of the State, capable at any future time of expansion to permit additional distribution channels for closed circuitry and the spectrum of electronic media education will employ in the future.

During the conduct of the study, in addition to enthusiasm for the proposed ETV network, one plea was voiced in every section of the State: devise a system to allow occasional local program input. There appears strong consensus that such breakaways from network programming for local productions designed to serve local needs would be highly desirable. It is realized that considerable amounts of time, effort, budgets and talents are required to produce a radio or television program of quality; further, that the amounts of local option time away from the network each week would ordinarily be minimal. However, in view of the years of programming the FM network solely from Madison, the very existence of the opportunity to provide local input is appreciated - whether used or not. And unanimity of support for the ECB master plan can be generated. Therefore, in the interests of a more varied and meaningful network radio and television system and service, the interconnection system is designed to permit automated release of any network broadcast transmitter, radio or television, as approved by ECD staff, from the network operations center. Management and programming details and procedures are subsequently described; engineering details are contained in the Technical Report.

The required statewide educational communications interconnection system can be supplied Wisconsin in one of two manners: either lease from a qualified common carrier, or installation of a state-owned-and-operated facility. The Technical Report provides outline specifications for the recommended interconnection system, and performance and cost comparisons for both the leased and state-owned systems. Either system could well serve the ECB. Because of the extent of implications of such a decision, and the potential presence of factors not available to outsiders, the consultants make no formal recommendation here. Rather, it is recommended that the Educational Communications Board present summaries and cost comparisons of both interconnection methods to the 1969 Session, indicating the acceptability of both, so the Legislature can itself make this important decision.

With interconnection and the ETV station transmitters available on a 24 hour per day basis, it should be noted that the midnight to 8:00 A.M. period can be used to transmit instructional programs to the elementary/secondary schools, colleges and universities throughout the State. Each institution would record those presentations chosen for use with the coming day's classes. With the network thus used as a distribution system, costly duplication and shipment of videotape stock are eliminated; the same tapes are simply used repeatedly. Also, each institution is able to schedule the recordings at its own convenience, rather than attempting to fit into a statewide instructional television program block.

Programming

With assumption of responsibility for radio and television networking, the ECB also assumes responsibility for providing two network program services. This looms as one of the largest and most important assignments for the Educational Communications Division. Specific responsibility for planning and administering the two network services should be vested in a network radio program manager and a network television program manager, both reporting directly to the executive director.

The program managers should prepare network program schedules, according to predetermined submission and evaluation procedures, at regular frequencies, and according to program policy guidelines established by the Board. Such a program approval procedure, however routine, is mandatory, since the licensee of any station by federal statute is ultimately responsible for its programming.

For radio, the entire FM network program schedule is presently being provided by the University of Wisconsin. Realistically, the programming, production and talent resources at Radio Hall will always play a large role in radio network program plans. However, as ECB staff are available, ECB should work out an appropriate transition to assume direct control of the network schedule. The Board should formalize an arrangement with the University, similar to that recommended for television, to enable programming originated at the University to be fed the network. To insure quality, in practical terms virtually the entire radio network schedule (exclusive of local inputs) will continue to originate from the Madison campus. The difference, however, is that ultimate authority for determining the program schedule now will reside with the Educational Communications Board and Division.

With both radio and television, network staff have the responsibility of obtaining the best possible network program schedule from whatever the source: national, regional or local, recorded or live, Madison, Milwaukee or elsewhere.

This means that the network budget will have to include funds for recorded program acquisition and for the commissioning of original productions deemed most useful to Divisional objectives. As previously reported, the in-school and public television programming of WHA-TV and WMVS-TV are prime resources readily available to the network. So, too, are those of the Milwaukee Public Schools. The State's largest system will soon begin its 11th year of instructional television programming over Channel 10, and has a wealth of experience and skill to share. As later explained, this expertise should be channeled for optimum benefit for the entire State.

Development of the recommended networking plan will stimulate program utilization both in quantity and type not totally perceptible at this time. The utilization possibilities of such statewide educational facilities are limited only by the creativity of the Wisconsin educational community. The radio and television networks will provide:

- basic elementary and secondary instructional services for all areas of the State, separately and in tandem;
- a system for direct coordination of institutions of higher learning. (Lecture-demonstrations by professors with unique and specialized knowledge can be shared by all public colleges. In the face of growing enrollments, limited faculties and increasing tax burdens, this kind of efficiency is highly desirable.);
- post-high school educational service, in-service training, technical and adult education;

- opportunities for general education;
- broadcast conference possibilities between and among schools in the State, and;
- statewide meetings for any educational, governmental or cultural group.

Production

The concept of a central owned and operated radio and television production agency for the Wisconsin educational communications network was studied and discarded. True, this highly centralized approach would have been organizationally sound. But for reasons of diversification, involvement, maximum utilization of teaching and production resources, cost and immediacy, another approach is more desirable.

Because there exist in the State well equipped and experienced production centers capable without delay of providing educational programs of superior quality, it is recommended that the ECB develop technical and production specifications to the Board's own satisfaction, and designate those production facilities meeting such criteria as network production centers. Further, it is recommended that the ECB for the immediate future provide no funding for upgrading or initiating radio or television production systems and equipments, but rather leave such responsibilities to the administrative sponsor of each producer-to-be. Instead, the Educational Communications

Division should spread network production commissions around the several designated production centers in most equitable manner according to particular resources and talents.

As Wisconsin looks to the future, two types of educational production facilities can be identified. Many schools, colleges and universities will have their own radio and/or television production studios and origination equipments serving student training, resident instructional (CCTV) and, in some cases, broader-than-campus distribution to the local publics (low power broadcast stations or community antenna origination). Such missions are legitimate and laudable. Ordinarily, capital investments will be modest, and equipments will be of non-broadcast quality.

On the other hand, a small number of educational institutions will, because of mission and precedent, justify the more expensive professional broadcast calibre production and technical equipments, and qualify as basic network originators. In terms of production expertise, facilities, creativity and experience, the Milwaukee Technical College, the University of Wisconsin at Madison (radio and television) and the Milwaukee Public Schools appear to be initial network production center designees.

The consultants considered a plan to designate and upgrade a small number of network production studios strategically located about the State, and studied various criteria (geographic location, interest, existing facilities, future plans, contributing resources) underlying such selection. However, any such decision would be arbitrary and costly.

The proposed plan gets the ECB out of the production business, places such responsibility on the educational agencies which can justify this mission, and yet allows the State fullest advantage of interested production facilities. Nevertheless, in its capacity of reviewing and evaluating equipment and systems proposals for CCHE, the Board will still have opportunity to address the problem of proliferation of radio and television equipments. Further, the plan acts as a deterrent against every institution of higher education serving as a network production center. All are not qualified and should not assume broadcast production as their role. Responsibility for convincing their parent educational institution of the need for broadcast facilities and qualified personnel, and the funding there for, rests locally where it belongs.

In addition to designation of several network ETV production centers, the Educational Communications Division will need access to several mobile television units, in order to bring the wealth of historical, educational and cultural resources about the State directly into the classroom. The University of Wisconsin has included in its 1969-1971 appropriations request such a mobile unit. This request should be supported by the ECB. A second unit will ultimately be required fully to tap the State's resources. The plan calls for ECB acquisition in a latter stage of another remote unit as a pool vehicle for use at the state university campuses and other educational centers.

According to plan, then, there is a shift of emphasis for the University of Wisconsin with both radio and television. With basic responsibility for statewide planning and programming now residing with the ECB, and with adequate input to both the radio and television networks, the University can appropriately concentrate on developing the best possible professional radio and television production center. But to do so, and in order to provide the professional production capability the Board requires, ECB will need to support the University's request for production equipment appropriations. Full color production facilities will be essential to the broadcast industry by 1971; quality production studios will benefit both the network and the many other Capital based state agencies. (More than 50% of the audio tape recording and duplicating at Radio Hall is for non-University agencies such as agriculture and health.)

Regional Educational Broadcasting Councils

Basic to the recommended Wisconsin educational communications network plan is a series of educational broadcasting groups - community councils - to serve the various radio-television transmitter service regions. It is recommended that the Educational Communications Commission encourage the development of a series of regional educational broadcasting councils as broad-based advisory bodies to the network and to their local stations.

Members should be appointed by the ECB upon nomination from the individual locality. Composition and exact organization of the councils will vary from region to region. This is desirable, and will more truly reflect the character and needs of the particular region. There is ample precedent for such educational broadcasting councils. NEWIST at Green Bay sets the pace. So does WMVS-TV with its Milwaukee Community Broadcast Council. Stevens Point, LaCrosse, Platteville and Menominie have all developed paper models. Broadcast council members could be drawn within each broadcast service region from:

- public and private school administrators,
- university representatives,
- vocational-technical schools,
- Wisconsin Education Association regional representatives,
- libraries
- state legislators
- CESA units,
- area museum or historical societies,
- business and industry,
- farm and labor interests,
- extension agents, and
- the professions.

Regions in the northern part of the State served by automated transmitters, because of sparcity of population and resources, probably will not activate advisory councils. But in the majority of sections of the State such local developments will be stimulated.

The regional broadcasting councils will essentially serve two functions: to sponsor locally produced radio and television programs, instructional and general, tailored specifically to local needs, and to advise the Education Communications Division and Board on network programming most useful to their area.

As the mechanism to permit local breakaway from the radio and television networks to provide programming to individual regions - with appropriate responsibility but without undue obligation to the ECB, it is proposed that the Board approve the following plan.

> Certain stipulated periods each broadcast week will be designated by the radio and television network program managers as local option times. Regular network programs will be transmitted during these times, in the event a local group does not wish to preempt. However, individual educational broadcasting councils, as appointed from the regions and as local needs motivate, will request approval of the network to present a local program instead of the network offering for that region. All costs of program preparation and production will be borne locally. Decisions will be made locally as to the site of production. The regional council will also bear the

> responsibility of getting the radio or television program to the nearby network transmitter where, on command from the NOC, the transmitter can be released for local input.

This plan places responsibility where it belongs - at the regional level. If but one radio or TV studio is available in the area, it becomes the community production center. But if several campuses are so equipped and interested, decision as to production is made locally. It may well be that a state university will wish to install a telephone line from its studio direct to the nearby radio transmitter, or a microwave link to the television transmitter, to facilitate future local program production. If not, arrangements will have to be made to transport the program and a tape recorder to the transmitter for replay. But the basic responsibility for council membership, program decision, production costs, program quality and utilization resides locally, rather than with the ECB. Varied regional interests will have to plan together; local productions will be better appreciated and employed.

At least at the outset, the State will have a considerable financial burden providing an effective statewide network program service. But the various regions, as they determine necessity, will have the option during certain broadcast times to preempt the network program service for localized programming they support. Thus the opportunity is provided for special vocational or in-school lessons, for industrial training, for local public issues debate, for presentation of public office seekers and a number of other regional program possibilities. And thus the individual channels of the Wisconsin radio and television networks, according to FCC franchise, meet individual service area needs and are even more effectively employed.

All local programs, radio and television, should be so produced as to be cleared for use by the entire network if so desired.

As all stations of the radio and television networks are activated, a clustering effect may develop. CESA units and Vocational Technical and Adult Education Districts boundaries may change to adjust to the various broadcast station coverage areas. Such clustering is to be encouraged.

Wisconsin Educational-Public Broadcasting Cabinet

Each regional broadcasting council so activated will designate from its membership an educational representative and a public broadcasting representative to a Wisconsin

Educational and Public Broadcasting Cabinet, a program advisory group composed as follows.

Instructional Committee:

- -educational representative appointed by each operative regional council,
- -representative of Milwaukee Public Schools Department of Instructional Resources,
- -representative of each of the other designated network production centers,
- -two representatives of the Department of Public Instruction,
- -two classroom teachers chosen at large,
- -two elementary-secondary school administrators chosen at large,
- -network radio and television program managers,
- -ECD executive director, Chairman.

Public Broadcasting Committee:

- -public broadcasting representative appointed by each operative regional council,
- -program manager of WMVS-TV,
- -program manager of WHA-TV,
- -program manager of WDSE-TV,
- -representative of the University of Wisconsin at Madison radio production center, and other designated production centers not above represented,

-network radio and television program managers,

-ECD executive director, Chairman.

Both committees will meet regularly on call of the chairman to advise network staff and the Board on all matters related to both radio and television network program schedules. The Instructional Committee can provide valuable and knowledgeable assistance in such matters as resources development, repeat broadcasts and the distribution of instructional materials. The Public Broadcasting Committee can provide important service to the ECB and the State by serving as a sounding board and counsellor for the full range of public affairs, cultural, continuing education, informational, children's and other general out-of-school programs, guarding against improper use of the State facility. The Instructional Committee and the regional instructional programming mechanisms will serve as a democratic balance to state network scheduling, will insert the local control element, and insure against undue diminishment of local class scheduling.

The regional broadcasting council plan should enable NEWIST to evolve into an even more serviceable unit employing the nearby educational television and radio transmitters for local programming which augments the network instructional schedule.

The tri-state program development given birth by the State University at Platteville will have a firm base on which to build and provide service. The Duluth-Superior ITV organization can qualify as a council.

The University of Wisconsin at Madison has the opportunity to develop a local instructional and public broadcast service built around a regional broadcast council centered in the Capital City.

Because of its leadership role in instructional television, the Milwaukee Public Schools role vis-a-vis the network deserves special acknowledgement. For the past 10 years, this urban system has philanthropically made its full schedule of schools television programming available to surburban schools in the Channel 10 region without charge. Responsible for 1 out of 7 or 15% of the students in the State, the Milwaukee Schools have borne the total cost of packaging all ITV lessons with their own teaching and production staffs, and contracting for their broadcast over WMVS-TV.

In effect, the Milwaukee Schools are both an ITV program source of considerable merit, and an experienced production center and network resource. The Milwaukee school system will continue to have specialized and unique program needs which require contractual use of the Milwaukee Technical

College's WMVT-TV, Channel 36. It is recommended that the ECB enter into formal agreement with the Milwaukee Public Schools to make those locally-originated programs with statewide applicability available to the network without charge. Production costs for such will have been assumed by the school system in fulfilling its original objectives. In return, however, the Milwaukee schools will have access to the state network's ITV program schedule (thus eliminating the necessity of acquiring certain program locally, and doubling the number of school television offerings available). Further, the school system will, as described, have representation in determining the network ITV schedule. And the Division will undoubtedly call upon this experienced production resource to produce certain courses on contract.

Department of Public Instruction

With education the major mission of the radio and television networks, the state agency responsible for providing pre-collegiate educational leadership and development must be interrelated to the network in a number of ways. Appropriately, the State superintendent of public instruction is a member (and current chairman) of the Educational Communications Board. According to plan, his designees from the Department are members of the network's Educational-Public Broadcasting Cabinet, advising the Board on the network's instructional schedule and program acquisitions. Thus two important inputs to the educational communications system are provided from DPI.

Two others also appear advantageous. The Cooperative Educational Services Agencies are destined to become vital factors in the future of Wisconsin education. They are excellent mechanisms stretching from the Department to every school in the field, and can appropriately assume responsibility for the all important educational communications utilization. This report will not dwell on the necessity of proper utilization training to effective instruction by radio and television, other than to state it is mandatory. With coordination from the DPI in Madison and from the local educational agencies, CESA units can develop instructional systems specialists to assist every teacher and administrator in the State in effectively employing the media. It is recommended that the DPI include in its budget sufficient funds to provide this instructional media utilization responsibility through its Division of Instructional Services.

According to plan, the Department will not produce instructional programs itself, but will participate extensively in the design of such courses designated for production. Program development will be an important department of the Educational Communications Division. Here, instructional assessments and evaluations will be made, curriculum specialists, psychologists, educational methodologists, behavioral schientists, content specialists and other consultants will be brought from time to time as needed to plan the instructional television courses and supplemental materials destined for original production. As part of this responsibility, the ECD will maintain an educational materials resource center, coordinating with all elements of Wisconsin education. Here, then, is a fourth important input point for the Department of Public Instruction, to insure the most effective integration of this agency and its personnel with the network facilities.

Network Staff and Organization

In order to accommodate the Educational Communications Board and its varied responsibilities and duties, a 7 section Educational Communications Division is initially envisioned. It is comprised of the following:

- an Administrative Section, headed by the executive director, including a business manager, and containing the usual administrative functions;
- an Engineering Section, headed by a network director of engineering, including all NOC and transmitter technicians, with responsibility for the entire technical operation and maintenance and construction of the radio and television transmitters, interconnection, switching and recording center, technical evaluation and systems development;

- a Radio Section, headed by a radio network program manager, responsible for all network program acquisitions, scheduling and commissioner productions, and development;

- a Television Section, headed by a television network program manager, similarly responsible for all network program acquisitions, scheduling commissioned productions, and development;

- a Program Development Section, headed by an instructional resources development officer, with a radio production and operations specialist, a television production and operations specialist, and with responsibilities as previously described;

- a Network Information Section, headed by an information director, with responsibility to develop network program schedules, bulletins, news releases for all the media, arrange for distribution of all teacher and student guides and other supplemental program materials developed by the program development section, and maintain the clearinghouse function on behalf of state agencies and educators;

- an Institutional Facilities Coordination Section, headed by an instructional facilities specialist, with responsibility for advising schools and colleges on educational systems and program development, and providing coordination recommendations to CCHE. One of this section's prime responsibilities should be the studied development, in conjunction with CCHE and all Wisconsin public institutions of higher education, of a practical plan for the sharing of teaching resources via CCTV - only by directly addressing the problem, by appropriately acclimating both administrations and faculties and by preparing a deliberate and cooperative plan of operation and utilization will the instructional benefits and accompanying economies of CCTV be realized in public higher education. Only in this manner will it eventually become possible for certain fundamental courses to be taught on a number of campuses in large measure by one highly talented professor.

The Educational Communications Division staff, then, as network activation proceeds, might appropriately be composed of the following:

Administrative Section:

Executive Director	(currently budgeted)
Administrative Secretary	(currently budgeted)
Business Manager	(currently budgeted)*
Secretary	

Engineering Section:

Director of Engineering	
Assistant Director	(3/4 currently budgeted)
Secretary	
Transmitters Supervisor	
NOC Supervisor	
Schools Technical Advisor	
Transmitter and NOC Technicians	(18 currently budgeted)

Radio Section:

- Radio Network Manager
- Traffic/Continuity Specialist
- Secretary

Television Section:

- Television Network Manager
- Traffic/Continuity Specialist
- Secretary

*Budgeted at the Administrative Assistant Level.

Program Development Section:

Instructional Resources Development Officer
Radio Production & Operations Specialist
Television Production & Operations Specialist
Clerk/Secretary
Clerk/Secretary
(Plus Consultants on call)

Network Information Section:

Network Information Director
Network Information Specialist
Network Information Writer
Secretary

Institutional Facilities Coordination Section:

Instructional Systems Specialist
Secretary

The Program Development Section, in addition to obtaining the services of the various consultants previously mentioned, could use the Instructional Committee of the Wisconsin Educational-Public Broadcast Cabinet to assist with the development of new instructional programming. The Section could activate similar advisory committees for courses in vocational-technical, collegiate or continuing education.

It is recommended that the following Educational Communications Division personnel, currently working at the WHA studios in

Madison, be released from their ECB responsibility at the time of ECB assumption of the radio network from the University of Wisconsin:

Chief Announcer,
Production Manager,
Music Supervisor,
Staff Announcer,
Operations & Recording Supervisor,
Specailist, and
Parttime Assistants.

All employees are currently less-than-full time ECD staff members who also are members of the University Extension radio staff. Salary funds thus freed should be employed by the ECB towards reimbursement to the University of Wisconsin for radio origination services rendered the state network. As a result, it is likely that the 11 above-listed personnel will revert to fulltime employment at the University. The fiscal and administrative organization should be much cleaner as a result.

Financing and Phasing

Capital construction and operations costs were uppermost in the minds of the consultants as the Wisconsin State radio and television networking plans were developed. The technical design finally recommended is considered minimal to providing reliable professional statewide radio and television service and a firm foundation for future economical educational communications consolidation and development. Substantial new funding will be required to construct and operate the proposed radio and television systems. When viewed in the light of educational opportunity and service potential to the State, the costs are not out of proportion. In terms of financial commitments made by other states (SEE APPENDIX C), the totals projected for Wisconsin are not unrealistic. Additional capital and operating cost substantiation is available in the fiscal analyses made by Arthur D. Little, Inc. for the Carnegie Commission on Educational Television[2] and in the Carnegie Report itself[3].

Capital construction and operating costs for all technical aspects of the proposed system are treated in detail in the Technical Report. They are summarized in the combined management-program-operations budget estimates which follow.

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2. Estimated Cost of a Nationwide Educational Television System: Report to The Carnegie Commission On Educational Television, Arthur D. Little, Inc., Cambridge, Mass., January 25, 1967.

3. Public Television: A Program For Action, Report of The Carnegie Commission On Educational Television, Bantam Books, Inc., New York, New York, January, 1967.

As with other state network systems, it is recommended that the State of Wisconsin assume total fiscal responsibility for the technical distribution system - radio and television transmitters, network operations center, interconnection system - and for network administrative and technical personnel. There is precedent. The current ECB appropriation (Chapter 20.225 (2) appropriates $373,000 for fiscal 1968-1969) is earmarked for operation of the FM network. In virtually every state networking situation, the state assumes the responsibility for providing the system hardware.

It should again be noted that federal matching grants for capital radio and television construction will soon again be available. Title I of the Public Broadcasting Act of 1967 authorizes $38 million for such equipments over a 3 year period, matching local funds with up to 75% federal grants. It is believed that the first appropriation in the amount of $4 million will clear Congress by late fall of 1968, with anticipated supplemental appropriations late in fiscal 1969 plus substantial additional funds in fiscal 1970. With legislative endorsement, the ECB could be in position to submit applications early in 1969.

In the case of the software - the programming, there are three alternatives:

- the State can assume all costs of program and supplemental materials preparation and production;
- the State can assume none of the programming costs, but ask those using the network, the schools and universities, to include such responsibility in their budgets, or;
- the State can assume, on a matching basis or otherwise, a percentage of the program costs, with educational users contributing the balance.

It should again be noted that a number of Wisconsin schools are already incurring such program and production expense (the Milwaukee public and parochial, NEWIST and Superior-area schools, for example). Those favoring partial or total assumption of program costs by the users point to the fact that the instructional service is valued more highly, better employed, and there is greater involvement and participation throughout the educational hierarchy when payment is rendered. However, in the light of the Wisconsin educational structure and the networking plan proposed, it is recommended that the Educational Communications Board assume total costs of providing the state radio and television network program services, with local groups cooperatively assuming all costs of regional radio and television programs. (Local programming for broadcast stations licensed to the University of Wisconsin and the Milwaukee Board of Vocational and Adult Education should continue to be supported by these institutional budgets as at present.) This seems the most appropriate and administratively manageable mix for both public and private education alike (an important factor, with 25% of Wisconsin's students in non-public schools).

The consultants considered and rejected a plan whereby ETV transmitters, though licensed to the ECB, were programmed basically by regional community councils in a loose network affiliation arrangement. Such a plan reduces to the point of elimination the quantity of desirable programming which shoould be offered on a statewide basis. Program quality is much more difficult to achieve. And recurring costs drastically increase. Only through networking can program economies be effected.

Because of the magnitude of capital outlay, construction of the complete radio and television networking system is designed in stages. No specific timetable is herein recommended. A master plan composed of logically-phased segments is described in detail in the Technical Report and is summarized as follows. In this manner, the ECB and the Legislature can develop the networking system as rapidly as time and resources permit. A variety of considerations, educational, fiscal, political, geographic, technical and practical, entered into determination of phase priorities. The Board or the Legislature could well see fit to alter the order. With a master plan, such is possible without hardship to budgets or service.

Development of Educational Broadcast Communications for Wisconsin Capital Cost And Phase Summary

Phase I

A.	Activation of Educational Communication Board (ECB) and its operating division (ECD)	Completed
B.	Assumption by ECB of the assets and licenses of the FM radio network	Completed

Phase II

A.	Establish Network Operations Center (NOC)	$295,000
B.	Design and construct Rib Mountain stations (TV and FM)	721,200
C.	Design and construct De Pere stations (TV and FM)	860,000
D.	TV and communications microwave to De Pere and Rib Mountain from Madison NOC	210,000
E.	Two-way microwave Madison - Milwaukee	174,000
F.	Sell AM radio station WLBL	
G.	Design and construct Madison FM station	86,000
H.	Design and construct Madison TV station (UWM budgeted)	
		$2,346,200

Phase III

A.	Design and construct Platteville stations (TV and FM)	$498,300
B.	Design and construct Colfax stations (TV and FM)	757,250
C.	Design and construct Holmen stations (TV and FM)	742,300
D.	Expand microwave service to include new stations	210,000
E.	Expand NOC facility	280,000
F.	Replace Milwaukee TV transmitter and antenna	310,000
		$2,797,850

Phase IV

A.	Design and construct Lakewood Stations (TV and FM)	$562,600
B.	Design and construct Minoqua TV	570,500
C.	Design and construct Oshkosh TV	570,500
D.	Expand microwave to include new stations	150,000
E.	Replace Brule FM transmitter and antenna	122,500
F.	Replace Delafield FM transmitter and antenna	68,100
G.	Expand NOC	220,000
		$2,264,200

Phase V

A.	Translators	$ 90,000
B.	Brule TV if appropriate	498,500
C.	TV mobile unit	650,000
D.	Expand and improve microwave including intercampus and two-way to neighboring states	300,000
		$1,538,500
	Total ECB radio and television network system capital development	$8,946,750*

*Less WLBL sale revenue

Wisconsin Educational Radio and Television Network

ANNUAL OPERATING COST SUMMARY

Recommended Initial Budget*

Personnel:		
Administrative Section	$ 42,500	
Engineering Section	289,300	
Radio Section	27,000	
Television Section	23,000	
Information Section	18,000	
Program Development Section	58,000	
Facilities Coordination Section	21,000	
Employee Benefits @ 12%	57,450	
		$ 536,250
Administration:		
Office Rent & Equipment	$ 20,900	
Supplies, Communications, Services, Travel, Printing, Etc.	29,000	
		49,900
Radio Programming Service:		
Radio Reimbursement	$ 50,000	
Other	10,000	
		60,000
Television Programming Services:		20,000
Program Development, Radio and Television:		95,000
Technical Operations:		
NOC, Radio and Television	$ 65,000	
Interconnection	52,650	
Transmitters (FM & TV)	115,360	
WMVS-TV Transmitter Reimbursement	35,000	
WHA-TV Transmitter Reimbursement	35,000	
		303,010
TOTAL PHASE II OPERATING BUDGET		$1,064,160
CURRENT APPROPRIATION		373,000
REQUIRED ADDITIONAL FUNDING		$ 691,160*

*Phase II Level of operations; based on continuation of the present level of FM Network program services, and on a 75 hour per week ITV/PTV broadcast service. Note: initial operating expense can be lowered proportionate to delay within the biennium of activation of individual network segments.

Wisconsin Educational Radio and Television Network

ANNUAL OPERATING COST SUMMARY

Advanced Level Network Operations Budget*

Personnel:		
Administrative Section	$ 55,000	
Engineering Section	377,500	
Radio Section	31,000	
Television Section	32,000	
Information Section	39,000	
Program Development Section	91,500	
Facilities Coordination Section	24,000	
Employee Benefits @ 12%	78,000	
		$ 728,000
Administration:		
Office Rent and Equipment	$ 11,400	
Supplies, Communications, Services, Travel, Printing, Etc.	45,000	
Repository Service	35,000	
Repository Equipment	40,000	
		136,400
Radio Programming Service:		
UWM Radio Hall Reimbursement	$ 55,000	
Other	20,000	
		75,000
Television Programming Service:		30,000
Program Development, Radio and Television:		240,000
Technical Operations:		
NOC, Radio and Television	$130,000	
Interconnection	117,450	
Transmitters (FM and TV, including WMVS-TV and WHA-TV reimbursement)	643,240	
		890,690
TOTAL PHASE V OPERATING BUDGET		$2,100,090
CURRENT APPROPRIATION		373,000
REQUIRED ADDITIONAL FUNDING		$1,727,090

*Estimate Phase V Level of operations; based on full scale FM Network program services, and a 95 hour per week ITV/PTV broadcast service.

Advisory Committees

In addition to the Educational-Public Broadcasting Cabinet, the Educational Communications Board should call on such other advisory committees as the Board considers necessary to assist it in the discharge of its duties and responsibilities. A 16 member ETV Advisory Committee (including 3 current ECB members) assisted the Coordinating Committee For Higher Education with State ETV planning and development leading to submission of the educational communications legislation. It is recommended that the Board reconstitute that committee as an Educational Communications Advisory Committee to ECB and comprised of representatives from the various University of Wisconsin and State University systems branches actively engaged in educational communications. This would provide appropriate input from those of the State's higher educational institutions, and from those at the operational level most directly involved in the communications media.

A small Technical Committee composed of chief engineers and directors of engineering from commercial radio and television stations in the State, possibly appointed by the Wisconsin Broadcasters Association, plus their counterparts at WMVS-TV and WHA-AM-TV could advise the network director of engineering and the Board on all matters related to technical development of the state system. This would be an appropriate way to involve the commercial broadcasters of the State and call upon their expertise.

Advisory committees in the major areas of network operation, programming, engineering and information dissemination, can be workable mechanisms to provide the Board varieties of counsel and viewpoints, and can broaden the base of understanding and support.

V. FUTURE CONSIDERATIONS

While the proposed Wisconsin educational communications networking plan has the capacity to provide a variety of meaningful program services for the State, it represents only a beginning. The entire spectrum of electronic media - broadcast television of varying powers, closed circuit television, radio, computer assisted instruction, an educational telephone network, data storage and retrieval, computer networking, dial access, teletype - singly and in combination has powerful potential for service to formal education. Such developments on any substantial scale will be prohibitively expensive, unless there is adequate preliminary design and a plan for efficient sharing of resources by individual educational entities.

The Educational Communications Board has before it a magnificent opportunity to exert substantial leadership towards consolidation and extended use of electronic resources throughout the Wisconsin educational structure. The way is pointed toward multiple channel closed circuit linkage of the campuses of the University of Wisconsin and the State Universities systems. With the master communications pipeline concept - a flexible multi-channel distribution mechanism stretching across the State with tap-ins to any reception point - the ultimate system is more readily achieved. The plan initially recommended fully allows for this consolidation and expansion. The Board will need to devote continuous study to the other educational media, and systematically plot their development based on need, resources, benefit and commitment.

In this regard, the Board should continue to work closely with both the Bureau of Engineering and the Bureau of Management and Budget. Other state agencies will have corresponding needs to expand their use of the same electronic media. Wisconsin had several representatives in attendance at a recent Midwest Conference on Inter-governmental Communications. As a result, a report covering initial state agencies and consolidated communications is currently in preparation for the Governor. By cooperative planning among all state agencies of government and Education, Wisconsin more economically and expeditiously can receive the substantial benefits of the marvels of electronic communications.

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APPENDIX A

STATE OF WISCONSIN

Assembly Bill 82 Date published*: February 8, 1968

CHAPTER 349 , LAWS OF 1967

AN ACT to create 20.240 (2) (fp), 20.417 (3) and 39.026 of the statutes, creating a division of educational communications headed by an educational communications board within the co-ordinating committee for higher education and making an appropriation.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. It is the intent of this act to provide for the improvement and broadening of educational opportunities, to maintain and strengthen educational quality for steadily increasing numbers of Wisconsin young citizens, and to assure maximum economies made possible by new electronic teaching devices by designating the co-ordinating committee for higher education as the agency responsible for reviewing and supervising both noncommercial educational broadcasting by radio and by television and electronic interinstitutional connections. The educational broadcasting board is reconstituted as the educational communications board and designated as the head of the division of educational communications of the co-ordinating committee for higher education, responsible to the parent body for policy recommendations and for the administration and operation of noncommercial educational radio and television, and for review and supervision of such services as are contracted to other agencies.

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*Section 990.05. Wisconsin Statutes: Laws and acts; time of going into force. "Every law or act which does not expressly prescribe the time it takes effect shall take effect on the day after its publication."

SECTION 2. At the appropriate place in the schedule of section 20.005 of the statutes, insert the following amounts for the purposes indicated:

Building commission	20.240		1967-68	1968-69
State building program	(2)			
Lease rental payments	(fp)	S		
Higher education, co-ordinating committee for	20.417			
Educational radio and television	(3)			
General program opns.	(a)	A	$12,100	$21,800
Gifts and grants	(h)	C		
Federal grants	(m)	C		$1,200,000
Rentals and improvements	(u)	S		
Engineering and legal services	(v)	B		35,000

SECTION 3. 20.240 (2) (fp) of the statutes is created to read:

20.240 (2) (fp) Lease rental payments. A sum sufficient to make the rental payments under s. 20.417 (3) (u). The building commission may approve lease agreements for the rental of buildings, structures and facilities having a total project value which in the aggregate does not exceed $400,000 on those building projects for which the payment of rentals is appropriated by this paragraph.

SECTION 4. 20.417 (3) of the statutes is created to read:

20.417 (3) Educational radio and television. (a) General program operations. The amounts in the schedule to carry out its functions under s. 39.026.

(h) Gifts and grants. All moneys received from gifts and grants, for the purposes for which made.

(m) Federal grants. As a continuing appropriation, all moneys received from the federal government for educational radio and television, to carry out the purposes for which made.

(u) Rentals and improvements. From the state building trust fund, a sum sufficient for the payment of rentals on leases and subleases entered into by the committee under s. 39.026 (4) on projects designated and approved by the building commission when the projects are initiated and on projects designated and approved by the building commission after initiation thereof.

(v) Engineering and legal services. From the state building trust fund, as a biennial appropriation, the amounts in the schedule to provide the engineering and legal services required by the committee in the execution of its functions under s. 39.026.

SECTION 5. 39.026 of the statutes is created to read:

39.026 CO-ORDINATING COMMITTEE FOR HIGHER EDUCATION; EDUCATIONAL COMMUNICATIONS DIVISION. (1) Creation. To develop educational radio and television into a vital public resource for the enrichment and education of the people of Wisconsin and to provide assistance in state classrooms there is created the educational communications division of the co-ordinating committee for higher education. The division shall be under the direction and supervision of the educational communications board.

(2m) Expenses. All members shall serve without compensation but shall be reimbursed for the actual and necessary expenses incurred in the performance of their duties.

(2r) Officers; meetings. The board shall annually elect a chairman and secretary from its members and shall meet at least quarterly.

(3) Duties. The co-ordinating committee, through its educational communications division, shall:

(a) Receive and disburse state, federal and private funds and engage or contract for such personnel and facilities as it deems necessary to carry out the purpose of this section.

(b) On January 1 of each year, report its proceedings to the governor, including an accounting of moneys received and disbursed pursuant to this section.

(c) Initiate, develop and maintain a comprehensive state plan for the orderly operation of a state-wide television system for the presentation of noncommercial instructional programs which will serve the best interests of the people of the state now and in the future;

(d) Work with the educational agencies and institutions of the state as co-ordinator of their joint efforts to meet the educational needs of the state through radio and television;

(e) Furnish leadership in securing adequate funding for state-wide joint use of radio and television for educational and cultural purposes;

(f) Lease, purchase or construct radio and television facilities for joint use, such as network interconnection or relay equipment, mobile units, or other equipment available for state-wide use;

(g) Apply for, construct and operate radio and television transmission equipment in order to provide broadcast service to all areas of this state;

(h) Establish and maintain a continuing evaluation of the effectiveness of the joint efforts of all participating educational institutions in terms of jointly-established goals;

(i) Act as a central clearing house and source of information concerning educational radio and television activities in this state, including the furnishing of such information to legislators, offices of government, educational institutions and the general public.

(j) If appropriate funds are made available, file applications after appropriate engineering studies and feasibility surveys for the construction and operation of noncommercial educational radio and television transmitters in the vicinities of Wausau, Colfax, La Crosse and Appleton and translators in the Platteville and Ashland area.

(k) Establish and operate, as soon as practicable, an interconnection between the broadcast facilities and higher education campuses to facilitate state-wide use of closed circuit and broadcast radio and television for educational purposes. Additional facilities may be authorized by the committee if deemed necessary and if funds are available for such purposes.

(m) Throughout this development, seek to co-operate with similar bodies in other states and participate in regional and national network planning so as to insure maximum educational benefits for the people of this state.

(4) Authority to provide radio and television facilities. (a) As used in this subsection, unless the context requires otherwise:

1. "Existing building" in relation to any conveyance, lease or sublease made under par. (b) means structures in this state which in the judgment of the committee are needed and useful for educational television purposes, and all equipment therefor and all improvements and additions thereto, which were erected, constructed or installed prior to the making of such conveyance, lease or sublease.

2. "New building" in relation to any conveyance, lease or sublease made under par. (b) means such buildings, structures, facilities and permanent improvements as in the judgment of the committee are needed and useful for educational radio and television purposes in connection with lands and structures in this state, and all equipment therefor or for existing buildings, and all improvements and additions thereto or to existing buildings, which are erected, constructed or installed after the making of such conveyance, lease or sublease.

3. "Corporation" in relation to any conveyance, lease or sublease made under par. (b) means a nonstock, nonprofit

corporation organized under ch. 181 or any law amendatory thereof or supplemental thereto.

(b) In order to provide new buildings and to enable the construction and financing thereof, to refinance indebtedness hereafter created by a corporation for the purpose of providing new buildings or additions or improvements thereto which are located on land owned by or owned by the state and held for the co-ordinating committee for higher education or by a corporation or for any one or more of said purposes but for no other purpose unless authorized by law, the committee has the following powers and duties:

1. Without limitation by reason of any other provisions of the statutes, the power to sell and to convey title in fee simple to a corporation any land and any existing buildings thereon owned by or owned by the state and held for the committee for such consideration and upon such terms and conditions as in the judgment of the committee are in the public interest.

2. The power to lease to a corporation for a term or terms not exceeding 50 years each any land and any existing buildings thereon owned by or owned by the state and held for the committee upon such terms and conditions as in the judgment of the committee are in the public interest.

3. The power to lease or sublease from a corporation and to make available for public use any such land and existing buildings conveyed or leased to such corporation under subds. 1 and 2 and any new buildings erected on such land or on any other land owned by such corporation, upon such terms, conditions and rentals, subject to available appropriations, as in the judgment of the committee are in the public interest.

4. The duty to submit the plans and specifications for all such new buildings and all conveyances, leases and subleases made under this subsection to the department of administration and the governor for written approval before they are finally adopted, executed and delivered.

5. The power to pledge and assign all or any part of the revenues derived from the operation of such new buildings as security for the payment of rentals due and to become due under any lease or sublease of such new buildings under subd. 3.

6. The power to covenant and agree in any lease or sublease of such new buildings made under subd. 3 to impose fees, rentals or other charges for the use and occupancy or other operation of such new buildings in an amount calculated to produce net rentals sufficient to pay the rentals due and to become due under such lease or sublease.

7. The power to covenant and agree in any lease or sublease made under subd. 3 to impose fees, rentals or other charges for the use and occupancy or other operation of existing buildings in an amount calculated to produce net rentals sufficient to pay the rentals due and to become due under such lease or sublease.

8. The power and duty, upon receipt of notice of any assignment by a corporation of any lease or sublease made under subd. 3, or of any of its rights under any such sublease, to recognize and give effect to such assignment, and to pay to the assignees thereof rentals or other payments then due or which may become due under any such lease or sublease which has been so assigned by such corporation.

(c) The state shall be liable for accrued rentals and for any other default under any lease or sublease made under par. (b) 3 and may be sued therefor on contract as in other contract actions under ch. 285, except that it shall not be necessary for the lessor under any such lease or sublease or any assignee of such lessor or any person or other legal entity proceeding on behalf of such lessor to file any claim with the legislature prior to the commencement of any such action.

(d) Nothing in this subsection empowers the committee to incur any state debt.

(e) All laws conflicting with this subsection are, insofar as they conflict with this subsection and no further, superseded by this subsection.

SECTION 7.

(2) All members of the educational broadcasting board on the effective date of this act shall become members of the educational communications board created by this act.

SECTION 8. This act is not affected by the repeal and recreate of chapter 39 of the statutes made by chapter 92, laws of 1967, but, effective January 1, 1968;

(1) The references to "s. 39.026" in section 20.417 (3) (a) and (v) of the statutes, as created by this act, are changed to "s. 39.20".

(2) The reference to "s. 39.026 (4)" in section 20.417 (3) (u) of the statutes, as created by this act, is changed to "s. 39.20 (4)".

(3) Section 39.026 of the statutes as created by this act, is renumbered section 39.20 of the statutes.

(4) The references to "s. 39.026 (2)" in SECTION 7 of this act are changed to "s. 39.20 (2)".

SECTION 9. If Senate Bill 532 is enacted into law, then on the effective date of chapter , laws of 1967 (Senate Bill 532), or on the effective date of this act, whichever is later:

(1) The references to section 20.240 of the statutes in SECTIONS 2 and 3 of this act are changed to section 20.710 of the statutes;

(2) The references to section 20.417 of the statutes in SECTIONS 3, 4 and 8 of this act are changed to section 20.225 of the statutes; and

(3) Wherever the terms "co-ordinating committee for higher education", "co-ordinating committee" or "committee" appear in SECTIONS 1, 4 and 5 of this act, the terms "co-ordinating council for higher education", "co-ordinating council" and "council" are substitute, respectively.

SECTION 10. If Senate Bill 504 is enacted into law, then on the effective date of chapter , laws of 1967 (Senate Bill 504), or on the effective date of this act, whichever is later:

(2) Section 39.026 of the statutes, as created by SECTION 5 of this act, subject to SECTION 8 of this act, is renumbered section 15.643 of the statutes;

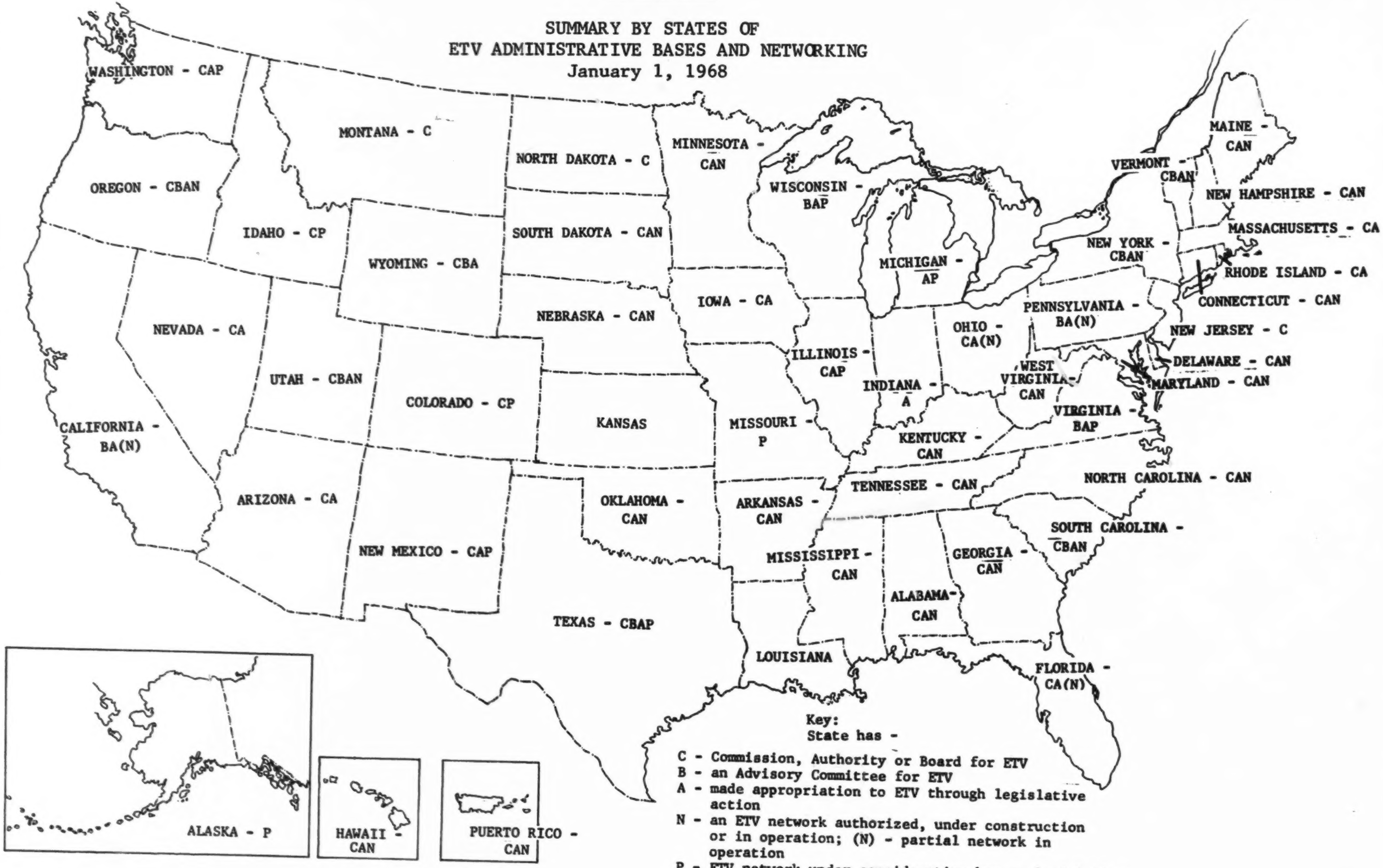
(3) The references to section 39.026 of the statutes in SECTIONS 4, 5 and 7 of this act are changed to section 15.643 of the statutes; and

(4) Wherever the terms "co-ordinating committee for higher education", "co-ordinating committee" or "committee" appear in SECTIONS 1, 4 and 5 of this act the terms "co-

ordinating council for higher education", "co-ordinating council" and "council" are substituted, respectively.".

APPENDIX B

SUMMARY BY STATES OF
ETV ADMINISTRATIVE BASES AND NETWORKING
January 1, 1968


WASHINGTON - CAP
MONTANA - C
NORTH DAKOTA - C
MINNESOTA - CAN
MAINE - CAN
VERMONT - CBAN
NEW HAMPSHIRE - CAN
OREGON - CBAN
WISCONSIN - BAP
MASSACHUSETTS - CA
IDAHO - CP
SOUTH DAKOTA - CAN
WYOMING - CBA
MICHIGAN - AP
NEW YORK - CBAN
RHODE ISLAND - CA
CONNECTICUT - CAN
IOWA - CA
PENNSYLVANIA - BA(N)
NEVADA - CA
NEBRASKA - CAN
OHIO - CA(N)
NEW JERSEY - C
ILLINOIS - CAP
DELAWARE - CAN
WEST VIRGINIA - CAN
INDIANA - A
MARYLAND - CAN
UTAH - CBAN
COLORADO - CP
KANSAS
MISSOURI - P
VIRGINIA - BAP
CALIFORNIA - BA(N)
KENTUCKY - CAN
NORTH CAROLINA - CAN
TENNESSEE - CAN
ARIZONA - CA
OKLAHOMA - CAN
ARKANSAS - CAN
SOUTH CAROLINA - CBAN
NEW MEXICO - CAP
MISSISSIPPI - CAN
GEORGIA - CAN
ALABAMA - CAN
TEXAS - CBAP
LOUISIANA
FLORIDA - CA(N)
ALASKA - P
HAWAII - CAN
PUERTO RICO - CAN

Key:
State has -

C - Commission, Authority or Board for ETV
B - an Advisory Committee for ETV
A - made appropriation to ETV through legislative action
N - an ETV network authorized, under construction or in operation; (N) - partial network in operation
P - ETV network under consideration but no legislative action yet

APPENDIX C

STATE BY STATE
PUBLIC TELEVISION ANALYSIS

STATE	ETV AGENCY	APPROPRIATIONS									STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
Alabama	Alabama ETV Commission			x	1953	x	x	x	3M	1M	7	7	2			x		
Alaska		x							-	-	-	-	-				x	
Arkansas	Arkansas ETV Commission			x	1963		x		800T	458T	1			x			x	
Arizona	State Board of Regents			x	1958	x	x	x			2							
California	California TV Advisory Committee (Dept. of General Service)			x	1965			x (instructional)	No State Funds		8	3					x	
Colorado	Colorado Commission Educational TV	x							-	-	1		1	-	-	-	-	

STATE	ETV AGENCY		APPROPRIATIONS								STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
Connecticut	Connecticut Educational TV Corporation			x	1961	x	x		1,5M	625T	2		1		x			
Delaware	Delaware Educational TV Board			x	1964	x	x	x	425T	500T		Interconnected Closed Circuit Statewide System Primarily for Instructional Programming						
Florida	State Dept. of Education (K-Jr. College) Board of Regents (Higher & Cont.Ed)			x	1957	x	x (Prior to 1967)	x	6M	1M	9	2+2	1			2+2		
Georgia	Department of Educational TV Services (Dept. of Ed.)			x					7M	2,3M	10	10	1			x		
Hawaii	University of Hawaii and State Department of Education			x	1965	x	x	x	1,6M	500T	8	8	6			x	x	
Idaho	Idaho Educational TV Advisory Committee	x							350T	40T	1						x	

STATE	ETV AGENCY	APPROPRIATIONS									STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
Illinois	Illinois Telecommunications Commission (Systems Study) Department of Public Instruction (Production)		x		1967	Research & Pilot Projects			-	1,7M	4		1				x	
Indiana	Department of Public Instruction	x				x And Planning					2							x
Iowa	Iowa State Educational Radio & TV Facility Board		x 1st one		1967	x x(500T for Board)	x	x	800T (For 1 station local Fed. Funds)	675T	1			x				
Kansas	-	x							-	-	1		1					x
Kentucky	Kentucky Educational TV Authority			?					9M	2,5M			12		x			

STATE	ETV AGENCY		APPROPRIATIONS								STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
Louisiana	-	x							1M (Local Station)	300T	1							x
Maine	Maine ETV Network-University of Maine			x	1962 (To University)	x	x	x	1,6M	340T	4	4				x		
Maryland	Maryland Educational-Cultural Broadcasting Commission			x	1966	x	x	x	1,3M	1,6M			7	x				
Massachusetts	Massachusetts Executive Committee For Educational TV (State Dept. of Ed.)		x (Planning once)			x (once)			-	-	2		4					x

STATE	ETV AGENCY	APPROPRIATIONS									STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
Michigan	----		x For Feasibility Study only						-	-	5							
Mississippi	Mississippi Authority for Educational TV		x						2,5M	800T	0		1	x				
Minnesota	Minnesota State Educational Television Commission (For Administration) Minnesota State ETV Network (Private Non-Profit Corp. of Operating ETV Station-For Operations)		x			x			4.5M	1.5M	4	4		1		x		
Missouri	----	-							-	-	2		-				x	
Montana	Montana Educational TV Commission (Inactive, no appropriation)	x							-	-	0		0				x	
Nebraska	Nebraska Educational TV Commission			x	1963	x	x		4,2M	650T	7	7	2		x	x		

STATE	ETV AGENCY	APPROPRIATIONS									STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
Nevada	Nevada Educational Communications Commission	x							1,5M	200T	1						x	
New Hampshire	University of New Hampshire Educational Broadcasting Council			x	1963		x		1,4M	474T	1		4	x	x			
New Jersey	Governor's Commission on Public Broadcasting (Research & Recommendations)	x							-	-	0 WNDT-Newark is a NYC station		4					x
New Mexico	Commission on Statewide TV for Educational Purposes			x	1961		x		1M	250T	1						x	

STATE	ETV AGENCY	APPROPRIATIONS									STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
New York	The State University of New York (Also an informal Advisory Board)			x	1965 State Univ.	x	x	x	1M	855T	5	5	2			x		
					1967 New York Network	x	x	x										
North Carolina	University of North Carolina			x	1955	x	x	x	4M	550T	5	5	4			x		
North Dakota	North Dakota ETV Commission										1							
Ohio	Ohio Educational TV Network Commission and State Department of Education			x	1959 For Commission Office		x		13M	80T	8	3 off air	29	x				
Oklahoma	Oklahoma Educational TV Authority			x	1956	x	x Bond Issues	x	1,2M	357T	2	2				x		
Oregon	State Board of Higher Education Division of Continuing Education (Has an Advisory Board also)			x	1957	x	x	x	1,2M	380T	2	2	2			x		

STATE	ETV AGENCY		APPROPRIATIONS								STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
Pennsylvania	Department of Public Instruction Bureau of Instructional Services (Has and Advisory Committee also)			x	1963	x	x	x	4M	500T	9	2	2	x		x (Partial)		
Puerto Rico	Department of Education Radio & Television Service			x	1957	x	x	x	3M	1M	2	2				x		
Rhode Island	State Board of Education (Administration) Department of Education Educational Television Services (Has advisory commission)			x	1966 1967	x	x	x	400T	350T	1			1 Station serves entire state				
South Carolina	South Carolina Educational TV Commission (Has an advisory committee)			x	1958	x	x	x	6M	3M	5	5	-			x		

STATE	ETV AGENCY		APPROPRIATIONS								STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
South Dakota	South Dakota Educational TV Board			x	1965	x	x	x	940T	420T	3		1	x	x			
Tennessee	Tennessee State Board of Education			x	1963	x	x	x	3M	1,2M	3		2	x	x			
Texas	Texas Education Agency (Has an advisory committee)			x	1965			x	3M	627T	5	-	-				x	
Utah	Utah Joint Committee on Educational Television (Has advisory committees also)			x	1958	x	x	x	2,1M	661T	6			x	x			
Vermont	University of Vermont (Has an advisory Committee)			x	1966		x		2,8M	410T	1		3		x			
Virginia	Virginia Advisory Council on Educational TV			x	1962	x			5M	1,3M	3		1				x	
Washington	Washington Educational TV Commission			x	For operation of Commission				-	-	6						x	

STATE	ETV AGENCY	APPROPRIATIONS									STATIONS			NETWORK				
		None	Occasional	Regular	Since	Capital	Operating	Programming	Capital Invested	Operating Budget	Operating	Interconnected	Additional Authorized	Authorized	Under Constr.	In Operation	Under Consideration	None Planned
West Virginia	West Virginia Educational Broadcasting Authority		x						3M	600T	-	-	2	x				
Wisconsin	Coordinating Committee For Higher Education Educational Broadcasting Division			x	1954	x	x	x	500T	400T	3						x	
Wyoming	Wyoming Educational Television Commission (Has an Advisory Committee also)		x For Planning						-	-	-	-	-					-

State By State Public Television Analysis

Descriptive Notes:

ETV Agency - Name of Body or Bodies Having Administrative Responsibility for Statewide Television Development and Operations

Capital Invested - Reflects Dollar Amounts State Agencies Report and Does Not Include Capital Value of Many Independently Licensed Stations

Operating Budget - Reflects State Agency Reports and Generally Does Not Include Operations of Many Independently Licensed Stations

Stations - The Number Operating
The Number Interconnected,
and Additional Stations Authorized

Network - Authorized
Under Construction
In Operation
Under Consideration, but no legislative action to date
None Planned

(As of January 1, 1968)

APPENDIX D

LIST OF STATE STATUTES ESTABLISHING AUTHORITIES FOR EDUCATIONAL TELEVISION

Alabama Educational Television Commission	1953	Act #81
Alaska		(Legislation in Preparation for 1968)
Arkansas Educational Television	1961, 1963, 1965, 1967	HB #202 Act 493
California Television Advisory Committee	1961	CH 2065 Art. 8.5
Delaware Educational Television Board	1964	HB #623
Florida Educational Television Advisory Board	1967	Chapt. 67-569 Florida Statutes
Hawaii State ETV Council	1965	Executive Order #23
Idaho Educational Television Advisory Committee	1962	Executive Order of Governor
Illinois Telecommunications Commission	1967	HB 2138
Iowa State Educational Radio and Television Facility Board	1967	Senate File 732
Kentucky Educational Television Authority	1962	KRS 168
Maine ETV Network - University of Maine	1962	Chapt. 247

Maryland Educational-Cultural Broadcasting Commission	1966	S.B. #24
Massachusetts Executive Committee for Educational Television	1960	Chapt. 567
Michigan Study of ETV Feasibility	1966	Public Act 153
Minnesota State Educational Television Commission		(Appointed by Governor)
Mississippi Authority for Educational Television	1966	S.B. #1957
Nebraska Educational Television Commission	1963	L.B. #667
Nevada Educational Communication Commission	1967	S.B. #306
New Jersey Public Broadcasting Commission	1967	(Appointed by Governor)
Ohio Educational Television Network Commission	1961 1965	S.B. #393 S.B. #200
Oklahoma Educational Television Authority	1953	H.B. #1033
Idaho State Board of Higher Education, Division of Continuing Education	1957	354,210
Pennsylvania Department of Public Instruction	1961	Act 558
Puerto Rico Department of Education Radio and Television Service	1954	Joint Resolution #94
Rhode Island Advisory Commission on ETV	1955	CH 28 Educational TV CH 3514 Sec. 1-5
South Carolina Educational Television Commission	1962	Title 19,c.21, Sec. 60(1-4) of S.C. Code
South Dakota Educational Television Board	1965	H.B. #536